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THE NATIONAL GEOGRAPHIC MAGAZINE

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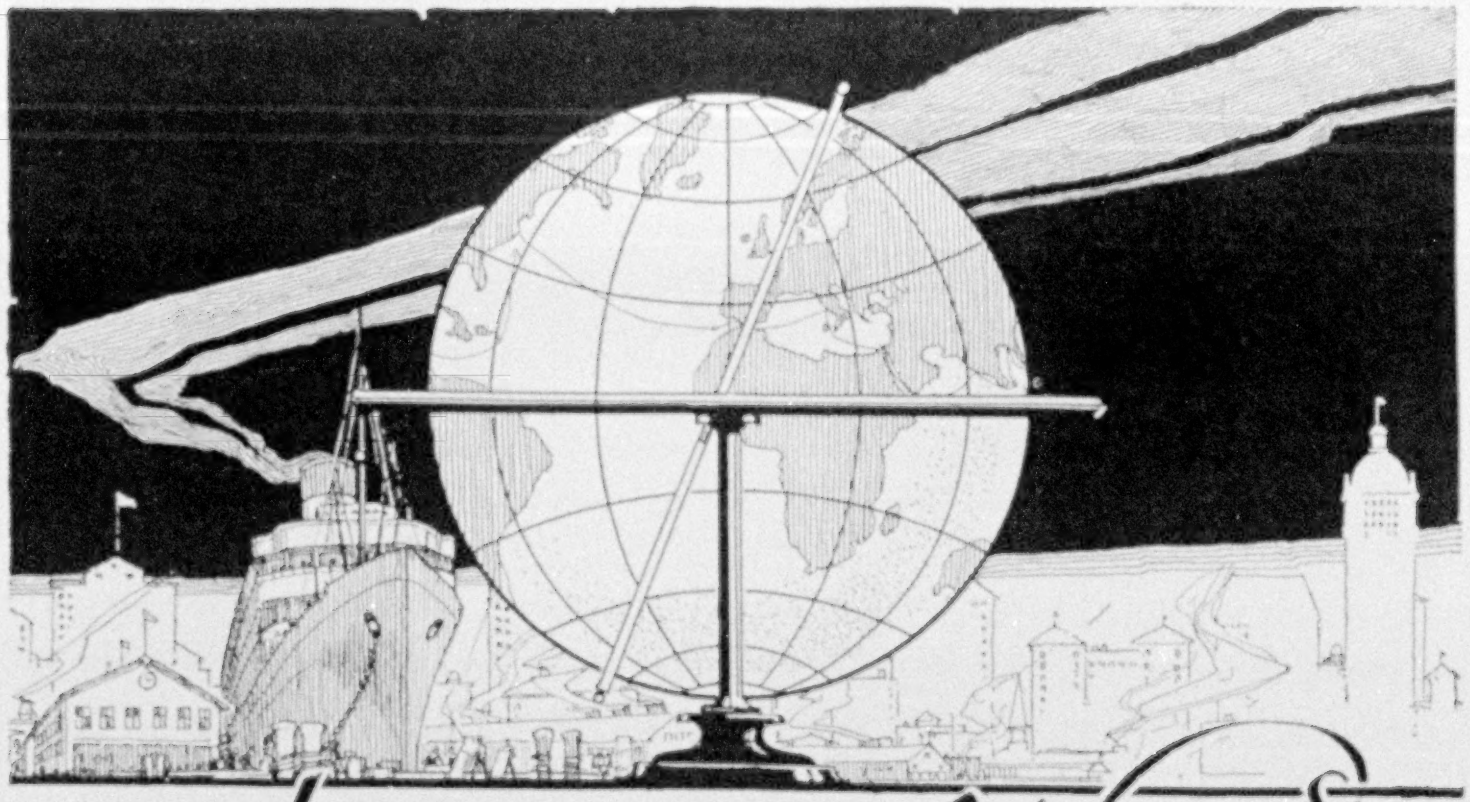

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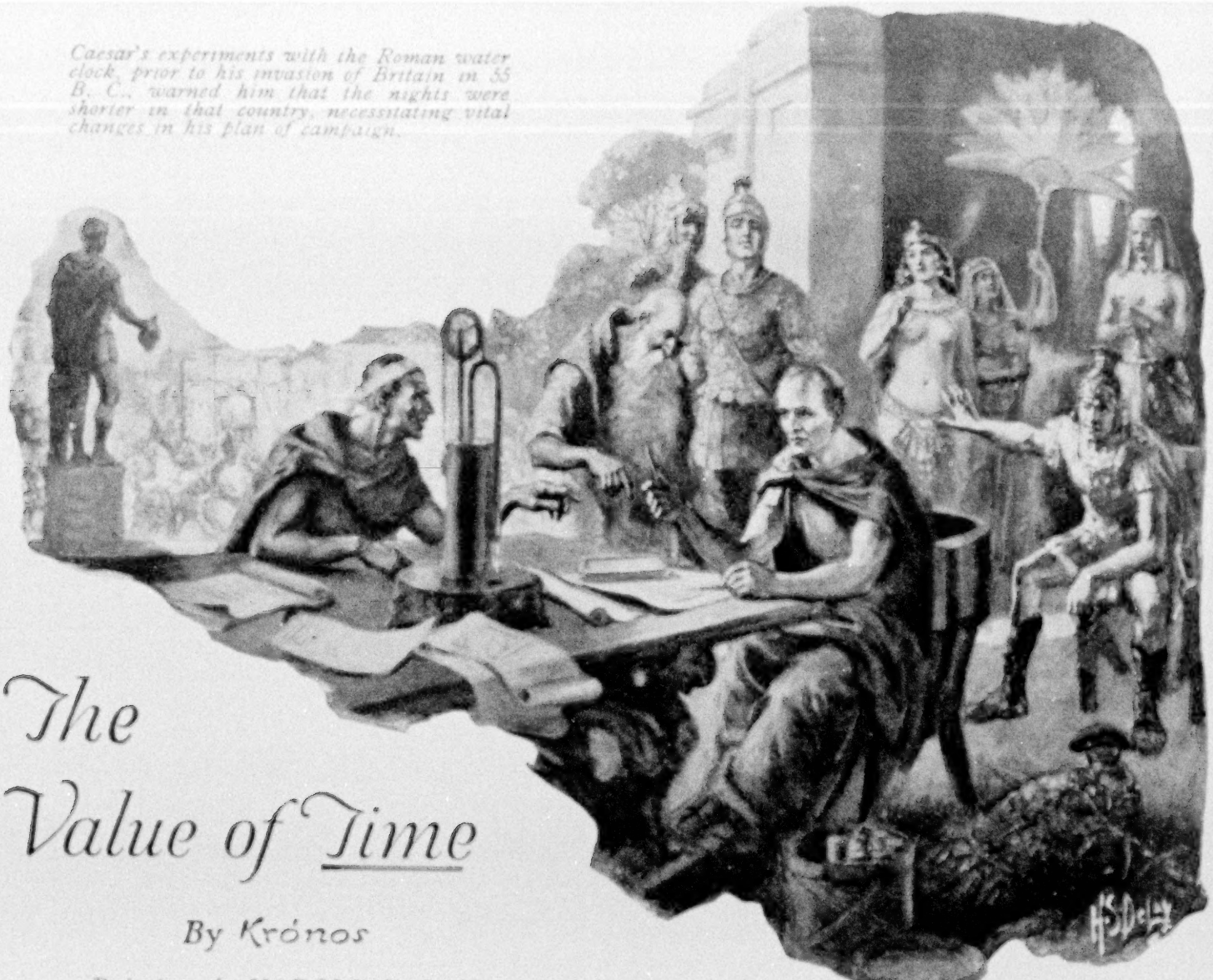

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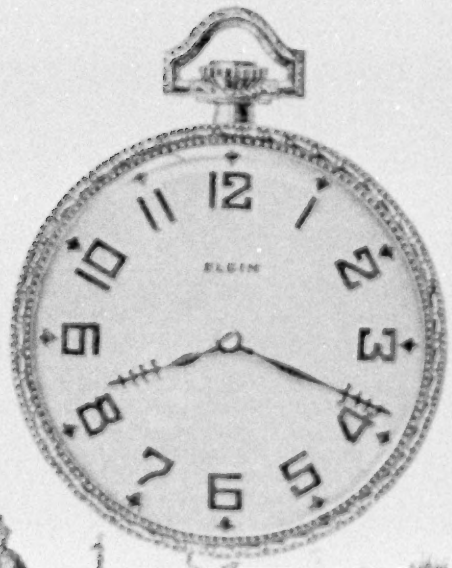

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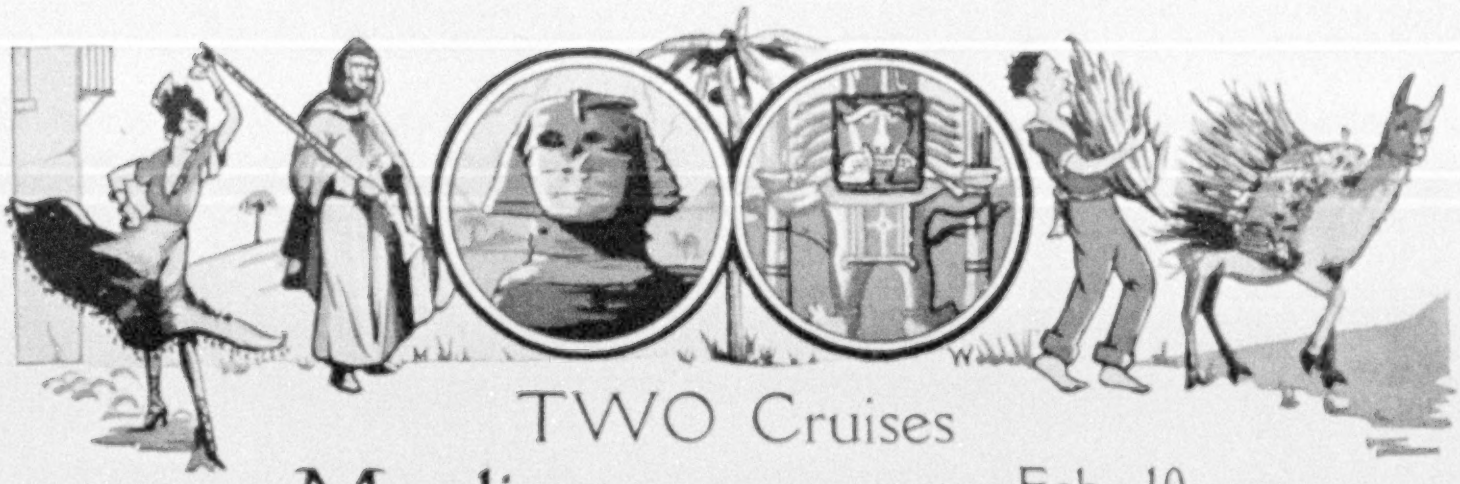

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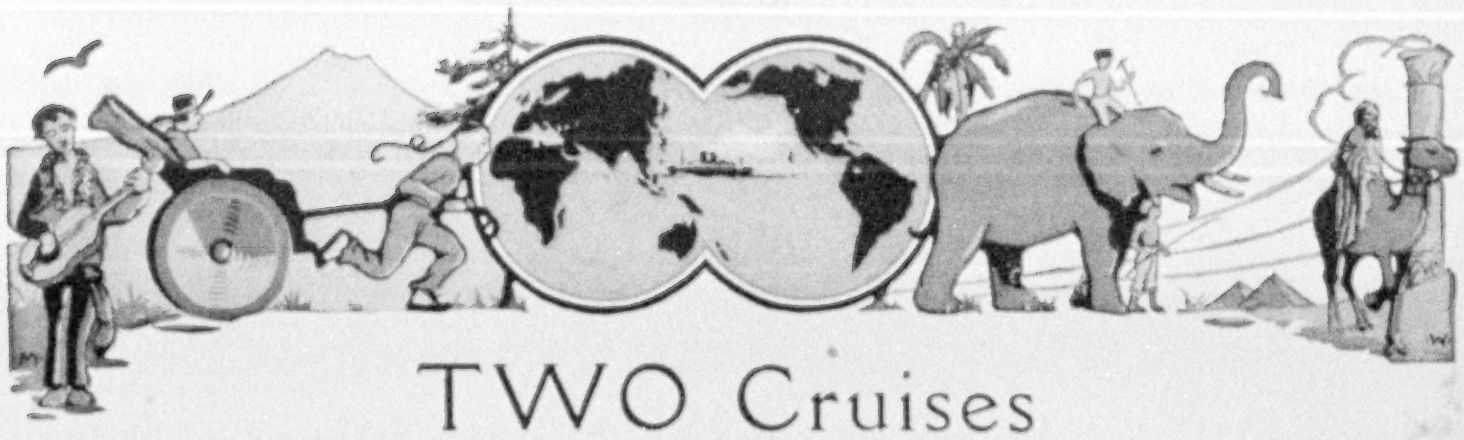

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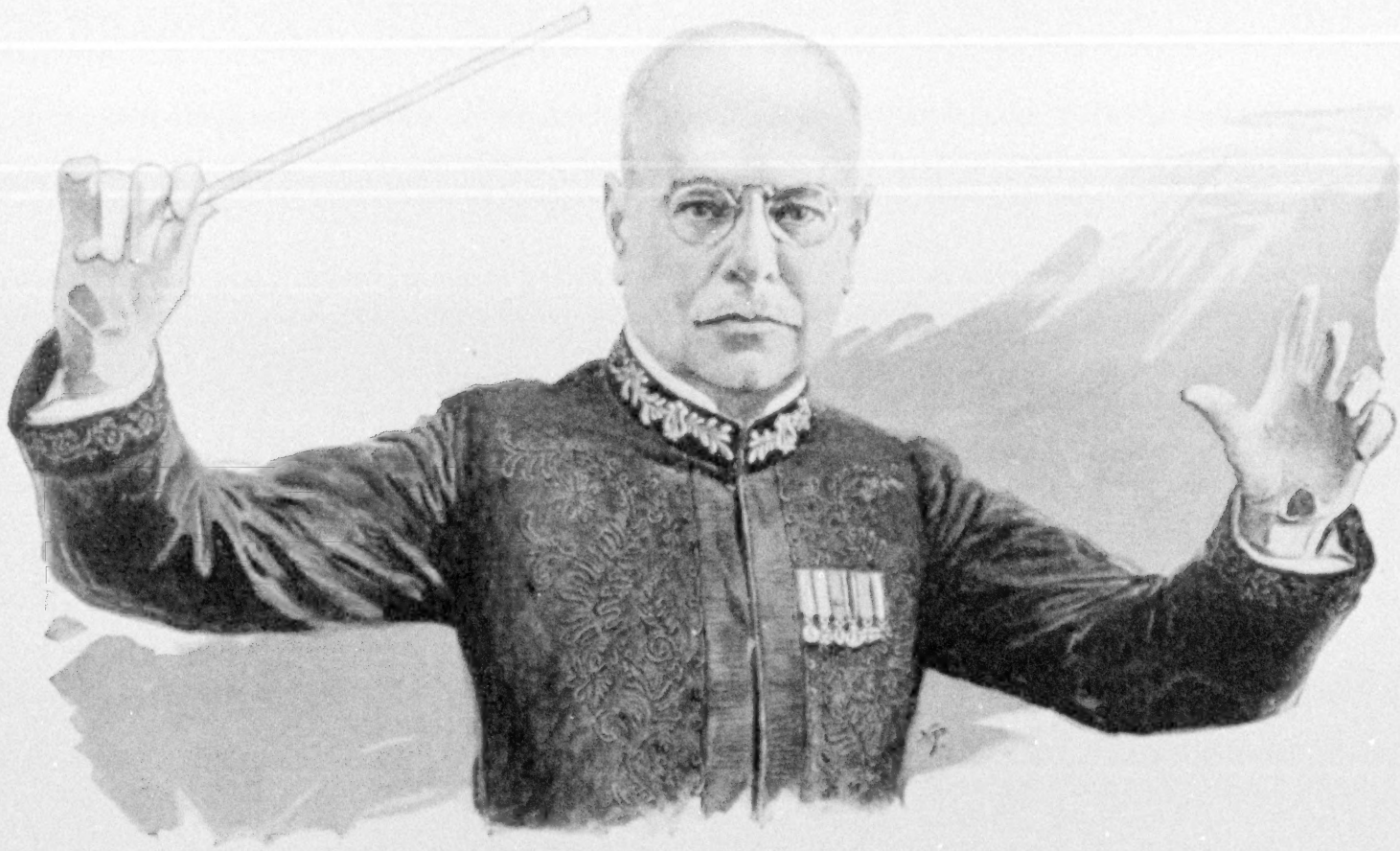

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VOL. XLII, No. 2 WASHINGTON AUGUST, 1922

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DENMARK AND THE DANES

BY MAURICE FRANCIS EGAN, LITT. D.

AMERICAN MINISTER TO DENMARK, 1907-1918

STOCKHOLM, the capital of Sweden, rather prides itself on being the "Paris of Scandinavia," largely because of its architecture and its modernness; but the Danes, admitting with pride that Copenhagen is not altogether a modern city, rather claim that they are more like the Parisians than their neighbors in Sweden.

There can be no question that Copenhagen, so far as the street life in the center of the city is concerned, is extremely gay. The Danes like to dine in cafés, or, when the weather is pleasant, in the open street. It is quite true that if one knows enough Danish to understand scraps of conversation heard at random, he will soon discover that the amiable Dane is very fond of his food, and that all questions of the table have much importance to him; I am not a master of the Danish language, and once I listened to a conversation with great interest and some understanding.

My vocabulary was not at that time large. I caught the names of "the Duke of Cambridge" and "the Duke of Cumberland," and I was oppressed with the seriousness of the speakers. It seemed to me that some momentous political question was being discussed. My companion, a very distinguished Dane, suddenly joined in the talk; it was in the garden at Klampenborg, where five or six children, with their father and mother, were treating themselves to some drops of cognac in small cups of black coffee.

The talk became animated. As a diplomatist, I was interested in the matter of the Hanoverian succession, which intimately concerned the Duke of Cumberland. Why the Duke of Cambridge should be brought in I could not say. I thought I heard the name of the Kaiser, too—this was before the war; but after a period of tense attention on my part, my companion interpreted the discussion for me. It had centered around the question as to whether the Duke of Cambridge or the Duke of Cumberland had really invented the famous Cumberland sauce, without which boiled ham in Denmark is not considered to be really ham at all. And the opinion of the Kaiser had been invoked.

The Danes, unlike the English, do not take their amusements seriously; nevertheless, they look on amusement as a very serious and necessary part of life. I recall that one day, walking with a Danish officer, I saw a man hurrying into his apartment—very few people have houses in Copenhagen—and I said, "That is an edifying spectacle. See how that good husband and father rushes, after his business, to meet his family!"

My friend gave me a glance of astonishment and looked at his watch. "He is five minutes late for dinner; that is the reason of his haste!"

One of the charms of Copenhagen, indeed, of Aarhus, of Odense, and of all the other Danish towns, is that the business of life is carried on with cheerfulness.

XUM

Photograph from Ewing Galloway

THE FREE PORT OF COPENHAGEN IS THE GATEWAY TO NORTHERN EUROPE

© E. M. Newman

COPENHAGEN FROM THE TOP OF CITY HALL TOWER

More than one-sixth of all the people of Denmark live in their capital city, whose population is a fourth larger than that of Washington, D. C.

Photograph from W. W. Rock

THE ROYAL THEATER IN COPENHAGEN

Bronze figures of Holberg, who made his people laugh at their own follies, and Oehlenschlager, who made the old Norse gods and heroes live again, stand at the entrance to greet the visitor to this majestic building.

Photograph from Emil Opffer

ABSALON'S STATUE IN THE HOJBRO-PLADS, COPENHAGEN

Absalon was an archbishop and statesman who wielded both his fighting arm and his Bible in behalf of his country. The square in which this equestrian statue by Bissen stands is a lively one during market hours.

Photograph from Emil Opffer

COPENHAGEN'S RAADHUS, OR TOWN HALL

In the tower there is a fine set of chimes and underneath a great glass roof there are extensive inner courts. To the left are two of the city's largest hotels.

Photograph from Emil Opffer

DENMARK'S BOURSE

Built in the Dutch Renaissance style, the Copenhagen Exchange dates from 1619. The tower, which is 167 feet high, is formed of four entwined green copper dragons. This is one of the most admirably proportioned buildings in northern Europe.

Photograph from Wide World Photos

A ROYAL PROCESSION IN COPENHAGEN

King Christian, accompanied by Queen Alexandrine, is seen leaving the Capitol after opening a session of the Danish Parliament.

Work for work's sake is not the aim of the Dane. He works well, but he neither works restlessly, nor nervously, nor constantly. Work with him is not the end of life, but a means of living; and the Danes, as a rule, enjoy the work in which they are engaged.

If the Danes eat a great deal, they do not drink more than other people, and they seldom drink without eating. Although Denmark has not made prohibition a law, yet the government has managed to raise the price of alcohol, and even the Danish schnapps, which was formerly almost as cheap as water, is now worth about four dollars a bottle, according to the present rate of exchange. This is a good thing, for schnapps was the bane of many a working man's family.

As a rule, the evils brought about by the saloon in this country do not exist, and while beer was looked on as a necessary article of diet, it was consumed in moderation.

It must be admitted that the Danes are sometimes unjust to the Swedes. One was invariably informed that there were really no drunkards in Denmark, and if one pointed out occasionally a staggering figure or two, the explanation was made at once, "Oh, he's a Swede!"

Sweden and Denmark are very close together, being separated only by the Sound; and the virtuous Danes generally attributed any exuberant gaiety induced by spirits on Saturday nights to the invasion of Swedes, in whose country the laws governing the use of alcohol were very strict.

DANES THINK AMERICANS TOO CONSERVATIVE ON DIVORCE QUESTION

There is a general impression that divorce and remarriage are very easy in Denmark. It is true that the radical government, especially when Alberti was Minister of Justice, made the annulment of marriage too facile. But there is no reason to believe that, in proportion, there are more divorces and remarriages in Denmark than in this country.

Among the radicals who have thrown off the traditions of the Lutheran Church, marriage is not looked on as a serious matter; and Americans are regarded as entirely too conservative in regard to marriage.

Difficulties, owing to what may be called "trial marriages," sanctioned by the state, do occasionally occur. In one case a distinguished lyric poet, for whose work I had a great admiration, died. I sent two telegrams and a wreath for his grave to his wife. The first telegram reached his first wife, the second his third wife, and the wreath the second wife.

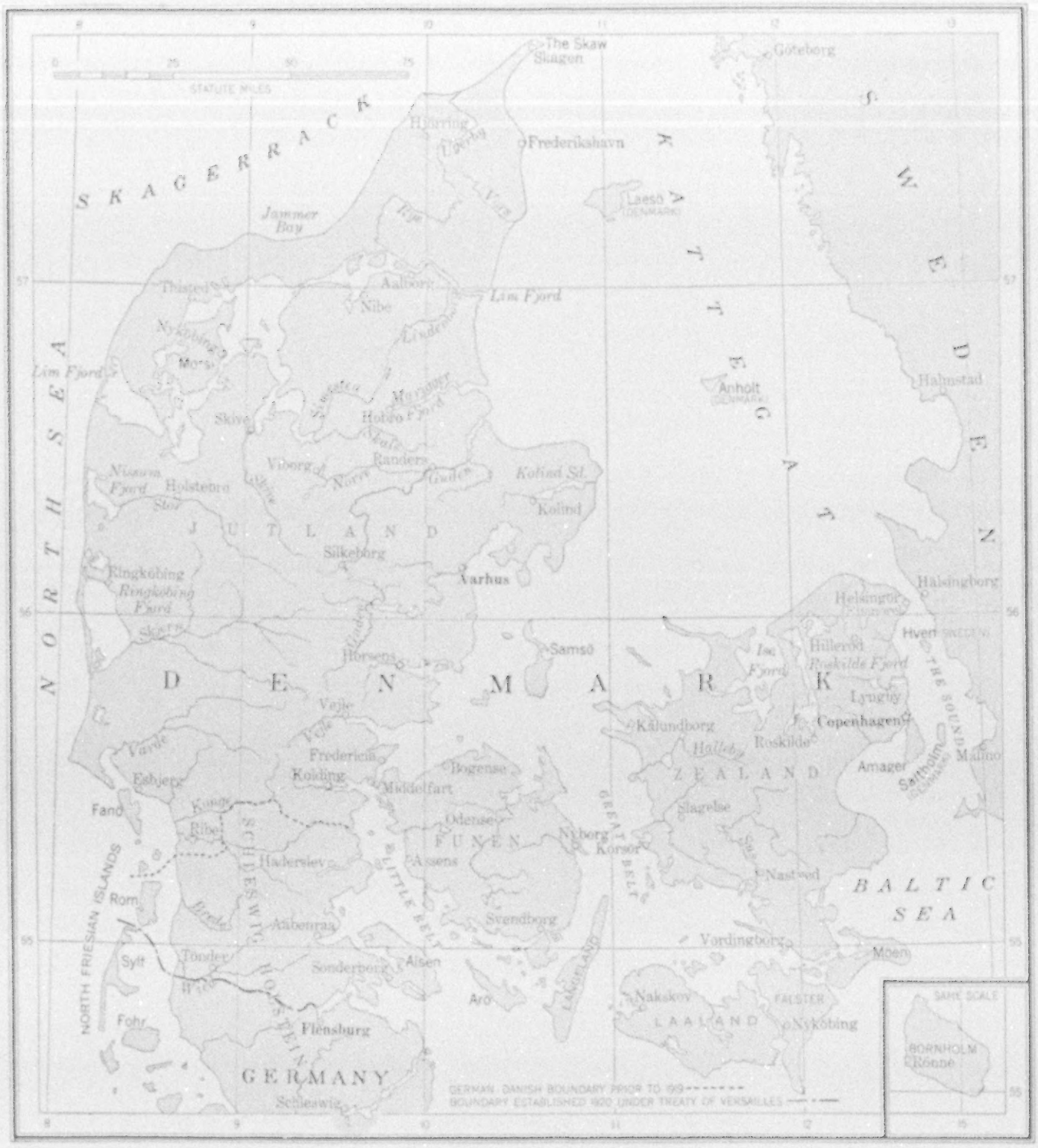
The Danes will brook no corruption in their government if they can possibly prevent it. They are extremely jealous of the national honor; no political power or prestige will save a man in office from punishment if he has betrayed his trust.

The case of one of the cleverest men in Denmark—Alberti—is an example of this. No man was more admired, no man more trusted, in spite of what may be called his unmoral ideas as to the conjugal relation. The time came, however, in 1908, when he was accused and found guilty of the misuse of money. The axe fell; he was imprisoned and no mercy was shown him, although a month before his incarceration he had been covered with decorations and stood very high in the estimation, not only of the Danes, but of those European statesmen who had come in contact with him.

SOCIAL BASIS OF LIFE IN AMERICA NOT UNDERSTOOD

It is regrettable that in none of the three Scandinavian countries is the Constitution of the United States and its workings, or the social basis of our life, well understood. The American-Scandinavian Foundation, which has been in existence for nearly fifteen years, has done much to make the culture and the point of view of the United States known in Denmark, Sweden, and Norway; but, unfortunately, only the sensational articles in our newspapers are reproduced in the Danish press. Our cultural life, our economic life, and the moral canons which guide us are scarcely known at all by the body of the people.

When former President Roosevelt came to Denmark, the ultra-radicals expected that he would announce opinions which were socialistic, communistic, or at least



Drawn by James M. Darley

A MAP OF DENMARK

Denmark is almost exactly twice the size of the State of Massachusetts. Four-fifths of its area is productive, yielding crops of wheat, rye, barley, oats, potatoes, and garden produce. More than 15,000 vessels are engaged in the Danish fisheries.

destructive to the foundation of a fairly conservative social system. They were deeply disappointed to discover that he was neither in sympathy with communism, destructive socialism, spoilation of the well-to-do for the benefit of the idle, nor with any of those extremely "advanced ideas" which have adherents in Denmark, and in every other Continental country, and which are attracting the thoughtless in our country and in England.

On one occasion a young man of talent, the president of a small and very "advanced" literary club, came to see me at the legation. He announced that he and his coterie were about to publish several small volumes celebrating certain distinguished women of the modern world. He himself had spent several weeks in the United States and intended to write about an American woman, and, as I had been sympathetic with the young author,

he decided to dedicate the book to me. Prudently, I asked the name of the heroine who was to be the subject of his volume. "The American Cleopatra," he said proudly, naming a young woman at that time the central figure in a notorious murder case in New York City.

This is not really so absurd as it seems, for, during several months, the Danish newspapers had copied from the American journals the reports of the scandalous occurrence. It had blotted out, in the opinion of many foreigners, owing to the space that our newspapers gave it, every other subject of interest!

It is very hard to dispel the effect of a tradition which exists in our country, that Scandinavia is made up of a people thinking alike, believing alike—politically and socially—practically one, and with similar national aspirations. When we speak of Scandinavia we think, as a rule, of three countries—Sweden, Denmark, and Norway—as we would think of three New England States, containing inhabitants speaking the same language and actuated by similar fundamental ideas.

It comes with rather a shock to many persons, who take their geography casually from the surface of the maps, that these three Scandinavian countries have not very much in common, except their ancestry.

The bases of their languages are similar, but a Dane does not find it always easy to read Swedish, while he does find it easy to read Norwegian. There is a great party in Norway, however—a party which has gained some political power—pledged to the substitution for modern Norwegian of the ancient tongue spoken by the Vikings.

For many years there was no love lost among the three countries. In 1397 they were united for a brief period by Queen Margaret, who, by the Treaty of Kalmar, joined them into one great Scandinavian kingdom. At this time she was already Queen of Denmark and Norway, and the Swedes were so impressed by the results of her energetic administration that they united with the other two countries; but the union was dissolved after her death, under the reign of her nephew, Eric of Pomerania.

In Sweden, women enjoyed certain voting privileges earlier than in any other country; and one cannot read her history without being impressed by the influence of such women as Saint Birgetta, who taught the Swedish women to make lace, the patterns of which are still retained; Kristina Gyllenstierna, and Ebba Brahe, one of the best administrators of her time, who did much to introduce effective methods of agriculture into Sweden.

SWEDEN AND DENMARK LONG HEREDITARY ENEMIES

Sweden and Denmark were until recently hereditary enemies. The Castle of Kronborg, which in the tragedy of *Hamlet* takes the name "Elsinore" from the little town (Helsingör) near it, was built, or rather rebuilt, by Christian IV of Denmark, who was contemporary with Elizabeth and with James I of England. He erected it to frown upon the Swedish shore, as well as to exact tolls from passing ships.

Sweden and Norway were alternately friendly and unfriendly; the unfriendliness culminated in 1905 with the secession of Norway from Sweden. For a short time Sweden threatened war and began to mobilize her army; but the Scandinavians have one quality in common; they possess an unusual portion of common sense, and it was decided to let Norway go rather than court the unnecessary evils of war.

Norway chose as king the son of Frederick VIII of Denmark, who was the son-in-law of Edward VII of England. He took the name of Haakon. This proceeding enraged the Swedes, who saw the rule of their own King Oscar, descendant of the French General Bernadotte, replaced by a Dane.

The dislike of the three countries for one another awoke again, but a desire for common safety during the late World War induced them to join in certain agreements, ratified by meetings of the three kings at Malmö, to stand by one another if they were attacked in a military or commercial way.

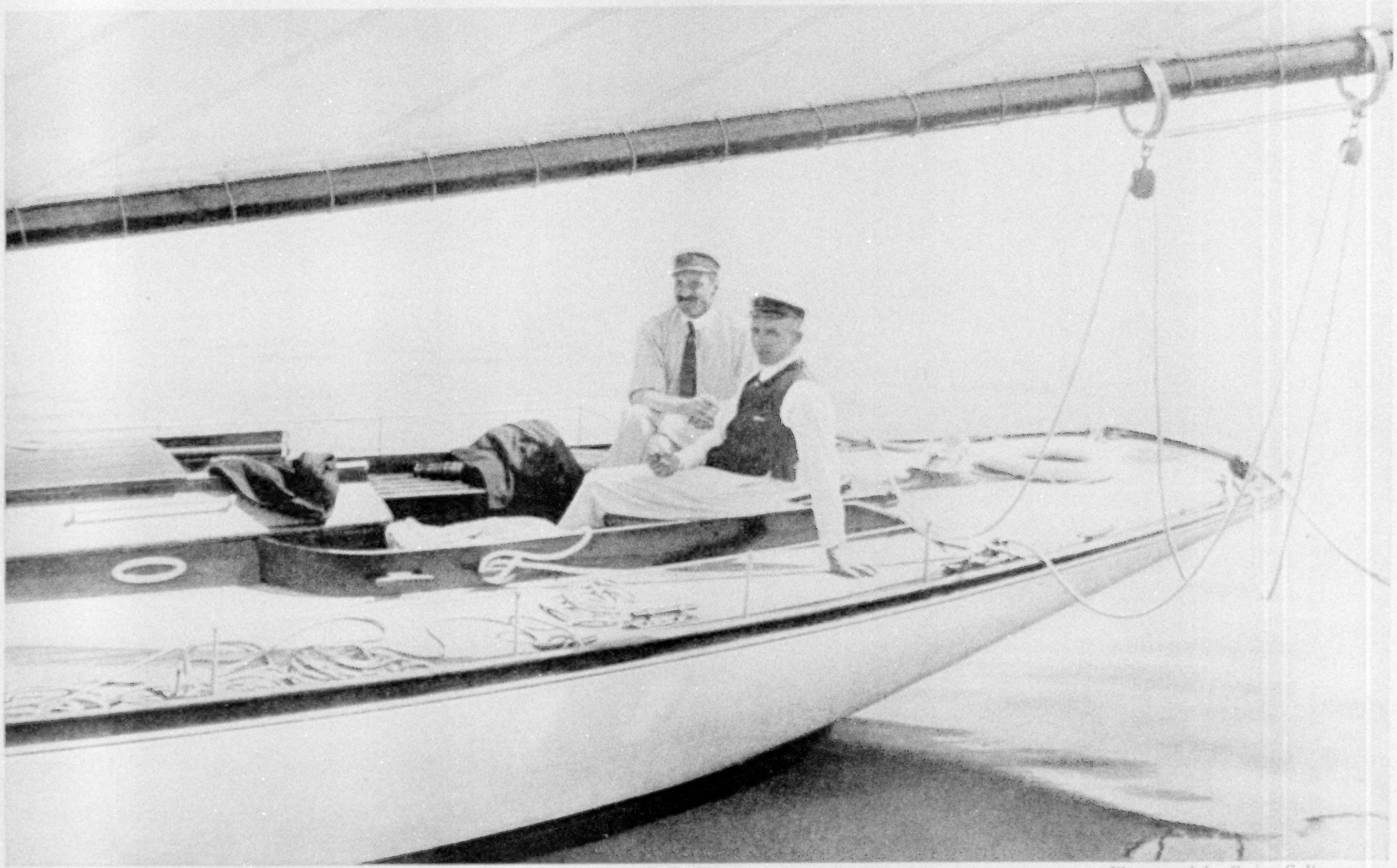
DENMARK'S RULER RELATED TO MOST MONARCHS OF EUROPE

It is no unusual thing for Denmark to give a king to another part of Europe. A glance at the pages of the revised *Almanach de Gotha* will show that the

Photograph from Ewing Galloway

KING CHRISTIAN X TOWERS ABOVE HIS PEOPLE

The democratic Danish monarch (in the center of the picture, followed by an officer) is one of the tallest men in his kingdom.



Photograph by Ewing Galloway

DENMARK'S RULER IS A GOOD SAILOR, TOO

Danish navigators, such as Vitus Bering, have had a generous share in the making of America's map.

Photograph from Ewing Galloway

CITY HALL SQUARE IN COPENHAGEN ON CHILDREN'S DAY

Every year a day is set aside for concerts and pageants given to raise money for welfare work among the children throughout the kingdom.

present King of Denmark, Christian X, son of Frederick VIII and grandson of that clever Queen Louise, who earned the name of "the maker of royal marriages," and, according to Bismarck, "the cleverest man in Europe," is related to nearly every crowned and uncrowned monarch in Europe except the Pope and the Sultan.

He is the cousin of the present King of Greece, the brother of the King of Norway, the cousin of the Queen of Norway, the cousin of the late Tsar of Russia, the brother-in-law of the late Crown Prince of Germany, the cousin of the King of Sweden, and, through the marriage of his uncle, Prince Valdemar of Denmark, with the daughter of the late Duc de Chartres, he is *parenté* with the Bourbons in all their French, Italian, and Spanish branches, and, through his English connections, "kin" to the Queen of Spain!

It is no wonder, then, that Copenhagen, the capital of Denmark, has been known, since Princess Alexandra married the then Prince of Wales and her sister married the father of the late Tsar, as the royalest court in Europe.

It does not follow from this that the Danes themselves are an aristocratic nation or not in love with real democracy. Even their highest classes in the social scale are much less aristocratic than Swedes of the same rank, and almost as democratic as the Norwegians, who are probably the most democratic people in the world.

A LAND OF COÖPERATION

Denmark is, above all, a land of cooperation and a land whose people are very highly civilized. In fact, no people existing are more literate, more interested in things of the mind, or more advanced socially than the Danes.

It may seem strange that the royalest court of Europe should exist in a country which is largely constructively socialistic. It seems even stranger to us that the farmers in Denmark, who are the most influential part of the population, should take to socialistic methods.

It does not follow, as it does in Sweden and in Germany, that socialists in Denmark should hate a king. They are sometimes in conflict with the existing governments and would doubtless use all their influence to obtain a republic if nearly all that can be gained through the application of democratic ideas to government had not been already achieved.

In truth, in Denmark, under a very liberal constitutional monarchy, the government has become so much a part of the people that it is *their* government. This has, in the eyes of the more conservative Danes, some disadvantages just now, as the present government exists mainly for the poorer classes.

When one speaks of socialism in Denmark, one does not mean exclusively the Socialistic Party. What is called the Socialist-Radical Party is second in numbers in the state; but the moment any party in Denmark ceases to work in the upper and lower houses—the Landsting and the Folketing—for the general good of the farmers, the electors act at once and the party is fused into a minority.

CONSTITUTIONAL MONARCHY AT ITS BEST

There is one especially admirable quality that strikes the observer in Denmark—that is the capacity of the Danes for "team-work." When it comes to the question of a reform which the people have thought about and have come to the conclusion that they need, there is no time lost in putting it into activity. To think, among Danish folk, is to act. In this they are unlike their favorite hero of tragedy, Hamlet.

It is refreshing, too, to discover that no great affair concerning the good of the people is undertaken thoughtlessly, and the Crown does not oppose in any way reforms that may lessen its privileges or prerogatives.

King Christian X is a Dane of the Danes, and yet sympathetic and tolerant of the legitimate claims of other nations; and in Denmark one sees a constitutional monarchy at its best. Whatever one's prejudices and traditions may be, one is forced to admit that a constitutional monarchy under such circumstances is an ideal institution, especially for a small state.

The population of Denmark is about 3,049,000. The statisticians have not included North Schleswig, recently returned, under pressure, by Germany, in this calculation. The area of Denmark

Photograph by Maurice P. Dunlap

SINDING'S VALKYRIE BRANDISHES HER SPEAR IN MODERN COPENHAGEN

This warrior maiden of Northern folk-lore stands at the entrance to Langelinie Park, where the northeast wind and the sunbeams, which, in Hans Christian Andersen's story, fight over the infant Copenhagen, still have their "fling" at her. Many of Copenhagen's statues reveal traces of the old Viking spirit still lingering in the modern Dane.

is 15,586 square miles; it is one-twentieth the size of Texas and about one-third the size of New York State.

North Schleswig is computed to contain 1,507 square miles, and the addition which its acquisition has brought to Denmark would make the whole population about 3,220,000. The Faröe Islands are part of the Kingdom of Denmark. Iceland, which formerly belonged to Denmark, became a free state in 1874, rather gently ruled by the King of Denmark.

The Danish West Indies, now the Virgin Islands, were bought by the United States in 1916 for strategic purposes, and they now form a very important part of the defense of the Panama Canal.

Greenland is the only colony that Denmark now possesses. It is, in fact, a monopoly of hers; and so far it has not proved a valuable one.

AGRICULTURE THE CHIEF INDUSTRY

Denmark is almost exclusively devoted to agriculture; and yet not many more than 1,000,000 persons follow the pursuits of agriculture, forestry, and fishing. This is shown by the statistics of 1911. The capital, Copenhagen, is a city too large in proportion to the population of the country; it contains 575,000 persons. Aarhus comes next, with 65,000; Aalborg has 35,000, and Odense, 40,000.

To be as exact as possible, there are 250,000 farmers in the country, formed into 4,000 coöperative societies, which permeate all the economic relations of life. These coöperative societies are the proprietors of all the machinery for buying all that the farmer needs and distributing all that he produces and does not consume himself.

There is no graft; no middleman can "corner" any articles of necessity; there are no multi-millionaires, with excess profits gained from home industries. In fact, the Dane who would declare that capital is the enemy of labor would be looked on as an economic idiot, just as it would seem equally idiotic to assume that labor existed for the piling up of capital.

In Denmark, money is not an end; it

© Ewing Galloway

WHERE POTTERY-MAKING IS A FINE ART

Women decorate the pottery in the beautiful studios of the Royal Copenhagen works. Each piece of porcelain is decorated by hand and the ware has never been commercialized.

is an instrument, a medium of circulation. And the object for which all parties in politics are struggling—the conservative in Denmark would be looked on as radical here—is that it should be equally distributed, not for luxuries, but for necessaries.

Other countries have begun to imitate the admirable system of farmers' banks, and the success that Sir Horace Plunkett has had in Ireland—a success which would have been greater if the Irish people had the capacity, as the Danes have, for team-work—owes most of its value to his careful study of the agricultural coöperative processes in Denmark.

The first Irish technical report on agricultural coöperative conditions in Denmark is a model for serious study, and time has not dulled its applicability.

Prussia despoiled Denmark in 1864; and while Imperial Germany grew more threatening to the liberty of Denmark every year until the close of the World War, the Danes were not hampered in any way, as the Irish were, by foreign control; consequently they had not the same temptation to emigrate. With some exceptions, they remained in their own country.

THE DANES A PROUD AND PATRIOTIC RACE

About the middle of the nineteenth century the Danish people, if they had had less love of their own land and less power of cohesion, would have deserted Denmark. Everything seemed to be against them. Serfdom had ceased, it is true, and the dawn of social equality was beginning.

But they had not yet recovered from the blow struck at their national pride early in the nineteenth century, when their fleets had been destroyed by the British. Yet this was as nothing compared with the tearing away of their most cherished province, Schleswig-Holstein, by the Prussians, assisted by the Austrians, in 1864.

The Danes had desired to conquer no other nation; their only wish was that they should retain their own language, their own literature, their own music and art—in a word, their national "culture."

Their religion was never in danger,

Photograph from Ewing Galloway

UNIVERSITY STUDENTS ON THEIR WAY TO LECTURE HALL

The University of Copenhagen was founded fourteen years before Columbus discovered America. Though Denmark believes in higher education for women, before a girl marries she is also taught how to keep a house and cultivate a garden.

XUM

© Ewing Galloway

PARADE OF BOY SCOUTS IN DENMARK

Prince Knud, the second son of the King, is seen at the extreme right of the photograph.

Photograph from Ewing Galloway

IN THE MUNICIPAL STADIUM OF COPENHAGEN

The Danish capital is proud of its pseudonym, "the modern Athens." Here the country's best athletes compete in sports which closely follow those of ancient Greece.

although the Lutheran Church in Denmark is less rigid, less Calvinistic than the same church in Prussia; but in Schleswig the Imperial autocrats forbade that the Danish language should be used in the Lutheran churches and schools; and this, in Danish eyes, in which Lutheranism was a national religion, was almost equivalent to the extirpation of their church.

Until the middle of the nineteenth century the Danes were brought to the verge of ruin by a stupid system of agriculture, only comparable to that in vogue in some of our cotton-raising States, where the same old crop destroys the nutrition of the soil and the boll-weevil eats its fruits. Scientific agriculture was unknown to them. The growing of grain was a fixed dictum, and rotation of crops a heresy.

In our practical life we are willing to assume theoretically the preëminence of mind over matter; but, in spite of our constant assertion, we are surprised when we discover that mental axioms, religious precepts put into action, may become the safest foundation for practical progress, in a nation which believes that ideals must rule.

DENMARK'S NATIONALITY PRESERVED BY GRUNDTVIG'S EDUCATIONAL SYSTEM

Denmark was at its lowest in 1870, apparently, though the ideas of Bishop Grundtvig had already begun their seminal work.

Nikolai Frederik Severin Grundtvig was the economic and social savior of Denmark. He was of the prevailing state religion, the Lutheran, but he was entirely out of sympathy with the breaking of the best traditions of Denmark, which connected it with the Middle Ages, with the times of Bishop Absalon and King Valdemar.

Religion in Denmark had become too formal. It had little vitality and very little connection with the national life. Again, the system of education, or rather of instruction, which it fostered was, to his mind, inadequate. The church, it seemed to him, was a caste, and it educated and cultivated only the people of the aristocratic classes, among whom German was the prevailing language.

They were very much Germanized; they rather despised the glories of Danish history and the beauties of its language. The Lutheran Church had been Germanized, too, and Grundtvig, a clergyman himself, determined to save its people through a system of education which would make the poor man self-controlled, practical, patriotic, and able to use his knowledge for the betterment of his country and himself.

This he slowly accomplished; and in 1880 his design had so much matured that the Danes, through his treatment of their own mentality, were beginning to be a self-respecting, hopeful, and prosperous people. This was about eight years after his death.

This was largely done through the system of high schools he founded. There are Danes today who disdain the high-school system, and who seem to think that no bishop—even a bishop disapproved of by his church—could under any circumstances be responsible for the fortunate condition in which Denmark finds itself today.

Although there is no difference in doctrine between the Lutherans in Denmark and those in the United States, the churches here are more independent. One reason, perhaps, why there are no bishops in the Danish church here is that the Lutheran ecclesiastics in Denmark are officials of the state, and their jurisdiction could hardly be made to extend in this country, and none have been nominated from the American Danish church.

Denmark is by no means an earthly Eden. Poverty exists, less sordid than in most countries, and industrial unrest exists; but if there is anything in modern democratic ideals, the Danes have discovered that thing and applied it, largely through the impetus given by this remarkably sane, patriotic, and truly religious man.

In the first place, he realized that everything depended on the spirit of the people. Material misfortunes naturally induce pessimism, and the Dane, when deprived of cheerful surroundings or the stimulus of effort, is a very melancholy person; and during the late autumn and all of the winter the climate in which he lives is one of the most depressing in the world.

The percentage of suicides in Denmark was at one time very great, and the Dane himself is quick to recognize the fact that

Photograph by Maurice P. Dunlap

A BICYCLE PARTY STOPS FOR REFRESHMENT AT AN ICE-CREAM STAND

Bicycling is one of the most popular sports in Denmark, and it is said that everybody rides, from the King down. In the narrow streets policemen must be stationed to regulate the traffic. There is little snow in Denmark and bicycles are used the year round.

he has much of Hamlet in his composition.

Until I spent some years in Denmark, I believed that Shakespeare's creation of Hamlet—founded on the Hamlet legend of the Danish historian, Saxo Grammaticus—represented a second-rate philosophical mind, English of the sixteenth century, battling against circumstances; but I soon realized that Shakespeare's Hamlet was a Dane; and more, also, that, whether it was through the intuition of genius or through experience, Shakespeare had come to understand very clearly the condition of Denmark and the Danes in the sixteenth century.

DANISH HISTORY AND TRADITION OF SHAKESPEARE'S "HAMLET"

In parentheses, I may say that Rosencrans and Guildenstern were really attachés of the Danish diplomatic establishment in London during the reign of James I.

In the rearrangement of territory, dependent on one of the frequent quarrels between Sweden and Denmark, the Guildensterns are now Swedish. Their castle is not very far from the shores of the Sound which divides Denmark and Sweden, and which at one point, that of Elsinore, can be crossed by a good swimmer. In fact, that part of the Sound between Elsinore and Hälsingborg is frequently used as a swimming track in contests.

The family of Rosencrans, now rather large, is Danish. The legend is that in the old days, before the Danish aristocracy had surnames, one of the popes bestowed on the head of the Rosencrans family the title of "Knight of the Rosary" or, rather, "Knight of the Rose Wreath." "Crans" in Danish is "wreath." It will be remembered that in *Hamlet*, on that sad day when Ophelia was borne to her tomb, she was deprived of her "crans" and "maiden strewments."

There is a tradition very firmly fixed in Denmark that William Shakespeare, as a boy, visited the Castle of Kronborg with a strolling troupe, sent for to honor a visit made by James I, who married the Danish princess, Ann of Denmark, sister

© Keystone View Co.

A GROUP OF DANISH GIRL SCOUTS ON A CAMPING TRIP

The people of Denmark make the claim that their Girl and Boy Scouts are the best organized and best trained in Europe. General Baden-Powell, who originated the world movement, has often visited their camps and expressed his admiration of their physical prowess.

of Christian IV. This seems very reasonable; for even the arras, which now is in the museum in Copenhagen, once adorned the halls of the Castle of Kronborg, otherwise "Elsinore." The pictures of various Danish kings are there, with German inscriptions, German being the court language of the sixteenth century, and one naturally looks for the rapier hole in the tapestry which the young Hamlet made when he unwittingly killed Polonius.

THE DANISH THEATER A NATIONAL INSTITUTION

The theater is more of a Danish institution than the opera, in Copenhagen. Both plays and operas are given on the stage of the Royal Opera House, at one side of the spacious King's Market (Kongens Nytor)—a plaza which is only second in attractiveness to that around which the four palaces of the Amalienborg stand.

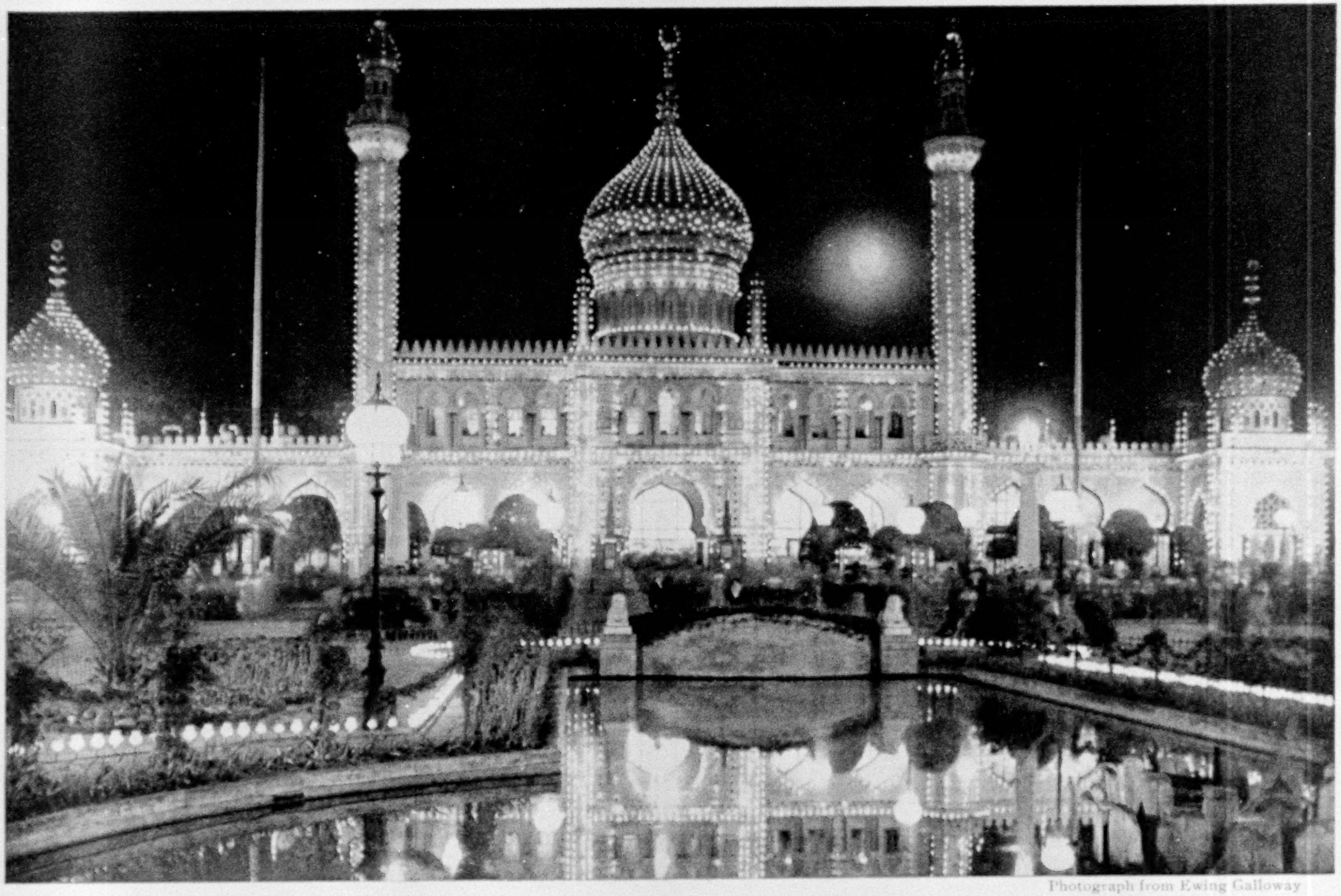
These fine Renaissance buildings were put up by four great nobles, but afterwards were bought by the crown. Until recently the king and the royal family resided in these palaces, but not long ago the palace of Christiansborg, in another part of the city, was restored; it had been almost ruined by a fire. The king and the parliament have taken up their residence in the halls, to which the fate of Struensee gives a certain romance.

The Royal Opera House is an imposing building. It is a national monument to the love of the Danes for their national theater, and it is the home of the Danish Conservatory, where the ballet dancers, boys and girls, are trained from their youth up. They are carefully looked after and educated in a school of their own.

The Danish ballet, which was brought to perfection by Bournonville in the beginning of the nineteenth century, is different from all other ballets. It is an exquisite mingling of the art of pantomime and the art of the dancer. It always tells a continued story.

Napoli, which the queen-mother of England recommended very warmly to me, is a very beautiful ballet. *Far From Denmark* and *The Millions of Harlequin* have never been reproduced in this country, but they are worthy of reproduction. The serenade in *The Millions of Harlequin* is very beautiful; it was, I think, first played in this country at the White House in Washington, by the United States Marine Band under the direction of Santelmann.

The Danes are very fond of open-air



Photograph from Ewing Galloway

TIVOLI, COPENHAGEN'S FAIRY PALACE

In the evenings, Copenhagen's matchless pleasure palace is the irresistible magnet which draws all the city to its portals. Among its many attractions is the quaint little pantomime theater, where, before the stage, in lieu of a curtain, a gorgeous peacock spreads his tail.

Photograph by Ewing Galloway

COPENHAGEN HAS ONE OF THE BUSIEST AND MOST PICTURESQUE PUBLIC MARKETS IN THE WORLD

Here the public buys direct from the producer. Many of the farm wagons are ingeniously built—almost as handy as a modern soda-water fountain. There are tanks for milk, shelves for jars and tins, and closets for this, that, and the other thing in the vehicles. The Danish farmers are among the best truck gardeners in the world. They have narrowly restricted acreage and they make every square foot of farm land produce all it can.

Photograph from W. W. Rock

IN THE COPENHAGEN FISH MARKET

Not far from where these women are offering the previous day's catch for sale is a restaurant, famous throughout Europe. Here the customer chooses from large tanks the fish that he wants baked or broiled.

performances. Nothing can be more lovely or stimulating dramatically than the performance of national plays, or of Shakespeare's *Midsummer Night's Dream,* in the woods of Klampenborg.

If the Danish weather could be counted on, these plays would become an institution to which tourists would flock in large numbers; but, though the Danish spring and summer are delightful when the weather is good, both in spring and summer some days do come when rain falls or the air turns damp and chill.

CASTLE OF KRONBORG REDOLENT OF SHAKESPEARE'S "HAMLET"

One of the most interesting performances was the playing of *Hamlet* on the ramparts and in the courtyard of the Castle of Kronborg. It gave one a thrill to see the background of the castle, unchanged since Shakespeare's time, static against the action of the drama. It is impossible to believe that Shakespeare had not the very aspect of the ramparts of Elsinore visualized in his mind when he made the opening scene of *Hamlet.*

An enterprising hotel keeper at Marianlyst, formerly a royal residence, has erected a monument over what he calls "the grave of Hamlet." Groups of school-girls may be seen occasionally dropping bouquets about the marble figure, and the legend runs that Sarah Bernhardt during her visit to Denmark actually shed a tear at this tomb. It is certain, however, that she drank a glass of champagne *à la mode* of Queen Gertrude to the manes of the Danish Prince!

It is a good piece of advertising, but the enterprising proprietor has rather overdone things by exploiting a pool near by as the pond in which Ophelia, in her madness, drowned herself.

In truth, the atmosphere around the Castle of Kronborg is very redolent of that one Prince of Denmark who is immortal. It makes no difference that he never lived at Kronborg, for his spirit haunts the place. There is the very lobby near the throne-room, and the long flights of stairs seem to be especially made for the flitting and wandering figure of Ophelia!

Photograph from Frederick Simpich

THE COPENHAGEN FISHMONGER DELIVERS HER GOODS FRESH AT YOUR KITCHEN DOOR

The famous Danish sole is peddled on the streets in small tanks.

Ann of Denmark, the Queen of James I, was, like all Danes, fond of pantomimic acting; and some students assert that the great scene within the scene in *Hamlet,* where King Claudius calls out in terror, "Lights! More lights!" was created in order to please the taste of this Danish princess for pantomime. There seems little doubt that *Hamlet* was written in her honor.

One may find the Padua of Shakespeare not exactly the real Padua, and certainly the coast of Bohemia never existed; but the longer one lives in Denmark the surer one becomes that Shakespeare must have been familiar with the country and its people, for even genius could hardly be so marvelously intuitive.

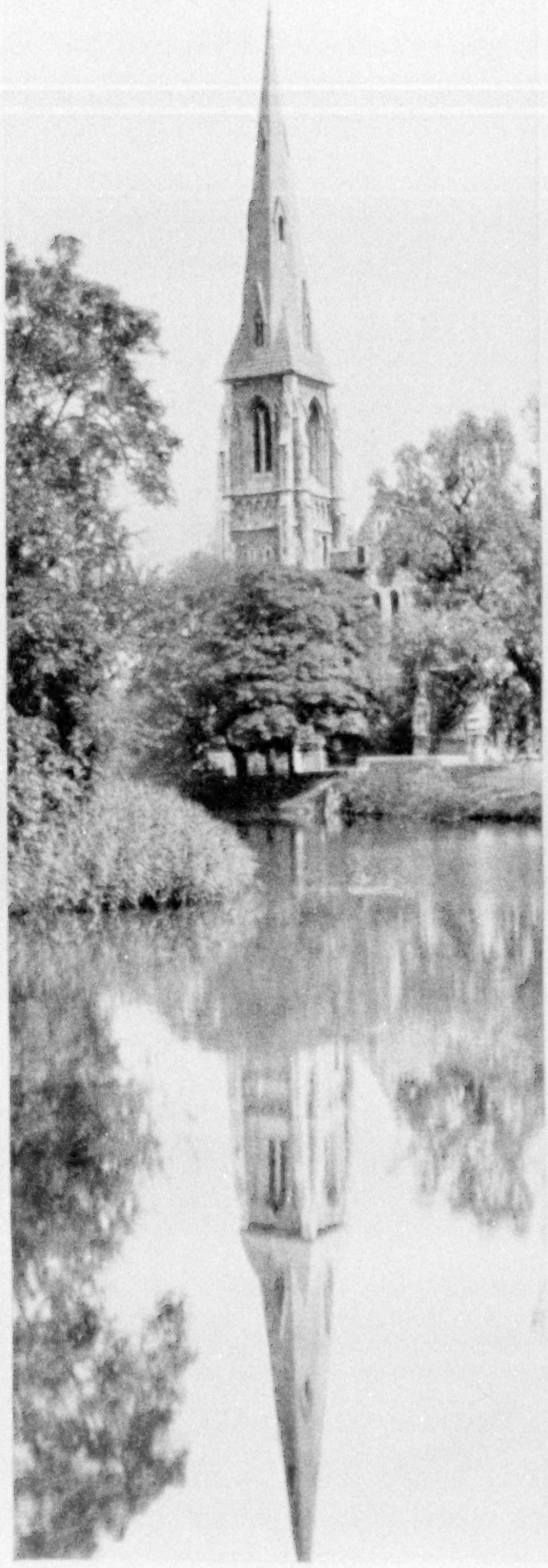
The Danish theater is part of the national life and it is taken very seriously. It sometimes shocks Protestants from other countries to find that it is the custom in many families to take the newly confirmed boys and girls to the royal opera to hear the typically Danish *Elverhoi* (The Elves' Hill) or Holger Drachmann's *Der War en Gang* (There Was a Time); and these performances are, as a rule, given on Sunday afternoon.

The Lutheran Church in Denmark is not at all antagonistic to the theater; and most of the pastors themselves, as a rule very well educated and cultivated men, would be shocked if anybody assumed to censure the induction of the young Christian soldier into the delights of the national playhouse.

It seems a pity that the pleasant fantasia, *Der War en Gang,* has never been played on our stage. The first scene, at a Dresden china court, is full of charm, humor, and delicacy. The theme itself might not be counted as altogether discreet for American children, but Danish fathers and mothers see no impropriety whatever in it; and, as in *Elverhoi,* there is some really entrancing music.

EVERY DANISH CHILD IS GIVEN A MUSICAL EDUCATION

The Danes have operas in their own language by Hartmann, Gade, and Heyse. They, with Lange-Müller, have created song music which gives melodies to every Danish home; and these melodies, set to poetic words by Danish lyric writers, are always in fashion. Jazz has been imported, of course. It is heard in the ho-



© E. M. Newman

THE ENGLISH CHURCH IN COPENHAGEN

This edifice, with its graceful Gothic spire, is situated in one of the most beautiful parks of the famous promenade called the "Long Line."

tels and in the cafés; but it is not taken seriously, and so solidly musical is the education of every Danish child—for it is the very exceptional child in Denmark who is not educated—that a spirit of real discrimination is seldom absent.

There is practically no illiteracy in Denmark, and to the establishment of the people's high schools, under the influence of Bishop Grundtvig, the spread of culture among the Danish people is largely due.

Before 1844 the Danish system of education was formal, dully classical, and intended only for the well-to-do. Grundtvig, a seer and a prophet, saw that the Danish people must not only be instructed, but cultivated, and that their national self-esteem could only be preserved if they knew the history of their own country and were made to be proud of it; that they must be insular and parochial if they were not taught to connect the history and progress of their own nation with the history and progress of other continental nations.

He knew that no country could exist by bread alone; but he knew, too, that no country could exist unless it discovered the art of providing bread for itself, and of softening the arduous work of gaining a living by something that was spiritual and stimulating.

In the first place, he believed that no man in Denmark was too poor or too lowly to grasp the glory of patriotism or to understand the difference between right and wrong.

SCHOOLS FOR THE PEOPLE FOUNDED BY A SHOEMAKER'S SON

The ideal of Grundtvig was different from the ideals of Luther; the God of Grundtvig was a shepherd rather than the keeper of a mighty fortress. Luther was not exactly a man of peace; he showed no desire to synthesize the traditions of the old church with the revolts of the new; nor was he particularly anxious that the peasants should be educated. Grundtvig broke away from the essentially Teutonic teachings of Luther in regard to the leveling education of the poor; but it is doubtful whether his policy of founding the high schools could have succeeded if it had not been for the force and character of Kristen Kold.

Photograph by Maurice P. Dunlap

FOUR FAIR DIANAS OF DENMARK

The Danish girl is fond of sport and often excels in riding, bicycling, swimming, tennis, and even boat-racing. A university "co-ed" has no trouble in keeping up with a crowd of fellow-students on a twenty-five-mile walk across country. Until her recent marriage to Prince René of Bourbon, Princess Margaret of Denmark, the only princess in Europe who has received a university degree, might be seen merrily bicycling or driving her little car on the roads between Copenhagen and her father's country house of Bernstorff.

Kristen Kold was a son of a shoemaker, and of a not very prosperous shoemaker. He early learned to detest the traditional system of education, and the directors of this formal system made a cabal against him, and he was forced to give up his intellectual ambitions and to be content with the avocation of book-binding. His book-binding, however, was very thorough, and he respected, as most Danes do, the art of the handicraftsman. He became, by accident, acquainted with the writings of Bishop Grundtvig, and, thus inspired, he took courage and founded at Rødding, in 1844, the first people's high school.

It was impossible that such a cultural school at that time could expect state aid. In the first place, it was not to be merely an academic or bookish school. It was intended for all who could listen and understand. Its whole power depended on the personality of the teacher. Its appeal must be solely through the spoken word. It was a courageous experiment, for its success would depend entirely on the support of the people. In a short time a hundred men, old and young, applied for admission.

But the women did not desire to be left out. Coeducation was looked on, not only in Denmark, but all through the Western World, as a horrible and dangerous innovation.

The pupils of Kristen Kold's first school were almost entirely farmers, and these farmers could not attend his lectures in the summer season, when they were needed in the work of the soil; but in the summer it was possible that some of the women might be free, and so he began by giving summer and spring courses for the women.

From this beginning grew the great system of Danish high schools, which it is said were the models on which our Chautauquas were founded; and also the system of university extension in Eng-

XUM

Photograph by Maurice P. Dunlap

VACATION TIME BY THE SEASHORE

The young people of Scandinavian countries have always mingled more freely than their brothers and sisters of southern Europe, and the famous Danish historian Saxo Grammaticus observed more than seven centuries ago, that "maidens admire in their wooers not so much good looks as deeds nobly done."

lish-speaking countries. But neither the Chautauquas nor the university extension courses have been as far-reaching in their effects as the Danish high schools.

NO REQUIREMENTS EXCEPT THE DESIRE TO LEARN

It is understood, of course, that these schools are not, like our high schools, introductions to college or the finishing off of the education of those who do not intend to go to college.

Unless some change has taken place in the system since I left Denmark, no requirement is necessary for the student except the desire to learn. There are no degrees given in these schools, no examinations, and no fixed standards of scholarship.

The teacher in Denmark has an acknowledged social position. It is understood that he must be freed as far as possible from material cares.

At the University of Copenhagen, for example, houses and pensions are provided for the professors; and teachers in the upper schools are so treated that they have a comfortable life, in a house and a garden, of which they have the tenure during their professional residence and a pension at a certain age.

PARENTS, THROUGH THE TEACHERS, CONTROL THE SCHOOLS

The duties of the government inspector of schools are very narrow in scope; he may report, but neither he nor the government can dictate to persons who consider themselves educational experts or to educated parents who know themselves just what their children ought to learn.

In Denmark, it is the parents, through the teachers, who control the school; but this does not in any way interfere with the high position which the teacher holds in a country where the education of a child to the utmost extent of his ability is looked on as an absolute necessity.

No newspaper in Denmark would dare to assume that an examination is necessary in these high schools for adults. The

high schools would be able to support themselves, even if they did not have certain grants from the communes.

It is understood that the teacher will say what he pleases in his lectures; and, as the students of mature years choose these schools themselves, they would look on it as a degradation if an arbitrary examination or standard were imposed on them.

The foundation of all these schools is religion and nationality. At Roskilde it was interesting to note that the modification of Lutheranism made by Grundtvig showed itself by a slight tinge of the monastic tradition of study and asceticism, for in these boarding schools high thinking is accompanied by plain living. Simplicity is not only the rule because it is economical, but because simplicity of life is one of the virtues most inculcated in the system of Grundtvig and Kold.

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A GUARD BEFORE THE DOOR OF THE ROYAL PALACE

The Danish King resided in the palaces at Amalienborg until recently, when he moved to the castle at Christiansborg, just restored after a disastrous fire.

At Roskilde the school is set in a lovely plain, glowing with green in the spring and lightened by gleams of reflected light from placid waters. The room of each student bears on its door the name of one of the old monasteries, so famous in Danish history.

HIGH-SCHOOL STUDENTS RANGE FROM 18 TO 30 YEARS OF AGE

The students in the people's high schools, men and women, are generally from eighteen to thirty years of age, and it is considered rather derogatory for a farmer's son or daughter not to have had the advantages of at least some courses in one of these schools.

As the interesting "Special Report of the Board of Education of Great Britain on Schools, Public and Private, in the North of Europe" says, "The primary aim of these schools is to inform, rather than to impart information."

That is, the teachers in the schools believe it their duty to increase the desire for information in the minds of the students; to broaden, to stimulate them, to divert them from the every-day drudgery of farm life, and to induce them, through an appeal to religion and nationality, to feel that their work is noble—in a phrase, to give the agricultural population a lively interest in all things of good

Photograph by Maurice P. Dunlap

A COUNTRY RAILROAD CROSSING WHICH SUGGESTS HOLLAND

The Danish landscape not infrequently resembles that other land where windmills, canals, wooden shoes, and tulip fields are also distinctive features.

repute, and to induce them to believe that a certain amount of happiness is within their grasp.

The ordinary educator in England and the United States would look with horror on the absence of discipline in these schools of the people; but, as all the students choose the schools themselves and are actuated by the desire to do team-work in order that there may be no distractions, outside discipline is as unnecessary as it is in the drawing-room.

DANISH STUDENTS HAVE LITTLE INTEREST IN INTERNATIONAL AFFAIRS

The men show, as a rule, little interest in the relations of nations to one another — that is, the political relations. This and the neglect of the serious study of finance and economic questions of universal importance are the only defects in the system of the high schools.

Since the World War, however, it is probable that the close connection of political with economic life outside of Denmark may be realized. But the lack of attention given to international economics and the belief that the rights of the worker must imply certain privileges, because his side of a contract is more "human," has much to do with the present financial crisis in Denmark. This is, however, being adjusted.

As to internal politics, the interest of the students is shown by the fact that more than 30 per cent of the members of parliament had been pupils in the high schools.

But it must be remembered that in Denmark politics is never looked on as something apart from the welfare of the people. The Dane knows exactly what he wants, and he will endure no merely personally ambitious leader.

If any politician attempts to interfere with a coöperative movement in the country, to deflect the thoughts of the people from the processes by which their country has been made prosperous, he is doomed at once to political extinction.

Team-work—you may call it coöperation if you will—is at the very heart of

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A FARM-HOUSE IN SCHLESWIG, RECENTLY RESTORED TO DENMARK

The scientific treatment of one of the worst soils for agricultural purposes in Europe, together with the coöperation of the farmers, has enabled the Danes to supply many foreign tables with food. On the island of Amager, where the descendants of Dutch truck farmers, brought over to Denmark at the dawn of the Reformation, raise the best cabbage and cauliflower in Europe, the greenhouses are so large that the soil in them is cultivated in the winter by plows drawn by two horses.

the success of the high schools. As the terms of the schools must be divided into two—November to March for the men, and the summer months for women and girls—each period is of five months' duration.

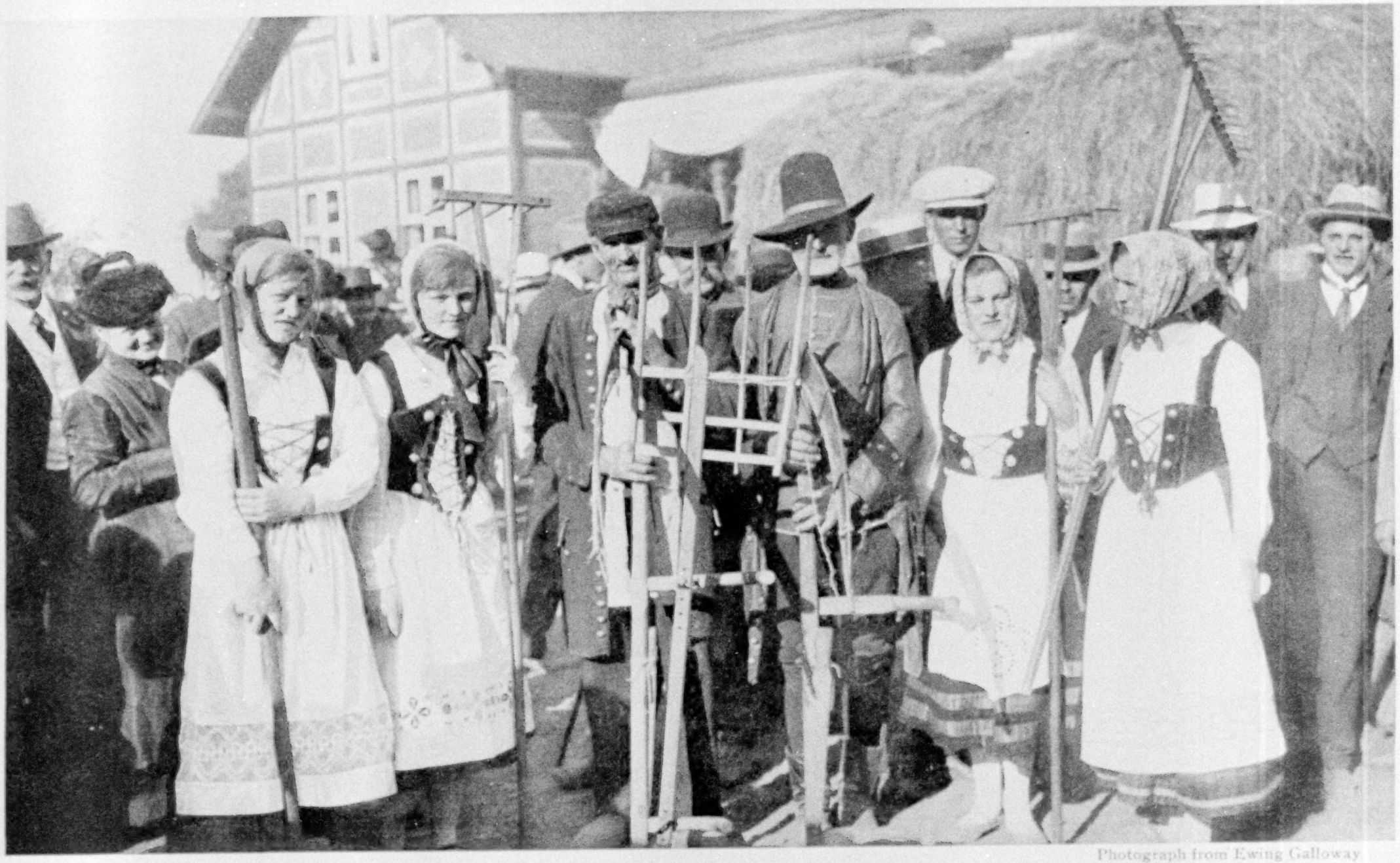
Some schools have only ten pupils; others four hundred. The attendance is made up of middle-class farmers and small holders of land, who may farm even as few as three or four acres.

The schools are not, as a rule, coeducational, though there are two or three exceptions. The school day is very long.

The state or the commune has nothing to do with the appointment of the teachers. They are chosen by the principal of the school, who, knowing that the success of the school depends entirely on its effect upon the students, can indulge in no favoritism. The teacher must have the power of stimulating and the gift of imparting information effectively.

Each hour is occupied, but it does not follow that every student is obliged to occupy himself in listening to lectures which do not interest him. He may, for instance, not find it necessary to consider the practical subjects. There are, for example, nearly fifty "folk-schools" which are purely cultural and do not offer courses in agriculture, cabinet-work, horticulture, or masonry. In 1914 the state contributed more than $160,000 for the support of these schools.

In the agricultural schools some preparation must be offered for entrance. These are generally attended by farmers with from fifteen to fifty acres, which, under the Danish system of intensive cultivation and accurate rotation of crops, is considered rather "substantial." The small holders, who have from three to ten acres of land—the Danish tun is more than equivalent to the English acre—and who add to their livelihood by laboring on other holdings, have schools of their



Photograph from Ewing Galloway

MODERN DANISH FARMERS AND FARM GIRLS IN THE OLD NATIONAL COSTUMES AND WITH OLD-FASHIONED FARM IMPLEMENTS

In the unexcelled Danish folk-school these men learn practical farming methods and the women are taught things that every farmer's wife and daughter should know (see text, page 149).

own, in which their practical problems are considered.

PRACTICAL TRAINING FOR FARM WOMEN

One of the most interesting of all the types of "folk-school" is that for girls and women who are the wives and daughters or who expect to be the wives of small farmers. Only a visit to one of these can make it understood how thoroughly the work is done. Without parade or ostentation, each girl learns the secret of leading the simple life cheerfully. She is taught not to waste anything and, above all, to take a pride in not wasting anything.

With the higher classes, it is understood that no girl should marry until she has been systematically taught how to keep a house and a garden practically.

In society, if one would miss at the dinners or balls a young baroness or countess or the daughter of a rich merchant or banker and inquire where the young lady has been during the season, the answer often was, "She is betrothed; she will be married in three months, and she has gone into the country to a *prestergaard*, to learn housekeeping."

This meant that she had been sent into the quiet house of a country clergyman in order that no detail of domestic management should be alien to her. She must learn how to graft rose-bushes and apple-trees; she must know exactly how to make conserves without danger of spoiling the precious product of the soil, for the Danes are taught to respect the soil as the mother of life.

In the schools for the daughters of the small land-owners a cheerful spirit of helpfulness is inculcated. Hurry and worry are entirely excluded; the art of making haste slowly is very much in favor.

It is possible for an elderly woman who helps to support herself and her family by selling eggs to solve the problem of why her hens do not lay more freely by attending a course, say, of two weeks. Her expenses and board are paid by the commune, which wisely holds that the prosperity she acquires is a valuable asset to the community, and she goes back home with an answer to her question.

And the answer has not been merely academic. She has seen model hen-houses and learned by observation.

When she returns home her husband, who may have had some trouble as to the yield of his three or four acres, takes her place. Thus, variety of life corrects the monotony of farming, and nothing in the management of the little place is left to chance.

In Mr. Foght's "The Danish Folk High Schools," Dr. P. P. Claxton says in the preface:

"In the thirty years from 1881 to 1912 the value of the exports of (Denmark's) standard agricultural products — bacon, eggs, and butter—increased from $12,000,000 to $125,000,000. Waste and worn-out lands have been reclaimed and renewed. Coöperation in production and marketing has become more common than in any other country. Landlordism and farm tenancy have almost disappeared. Rural social life has become intelligent, organic, and attractive. A high type of idealism has been fostered among the masses of the people. A real democracy has been established. This is the outgrowth of an educational system universal, practical, and democratic."

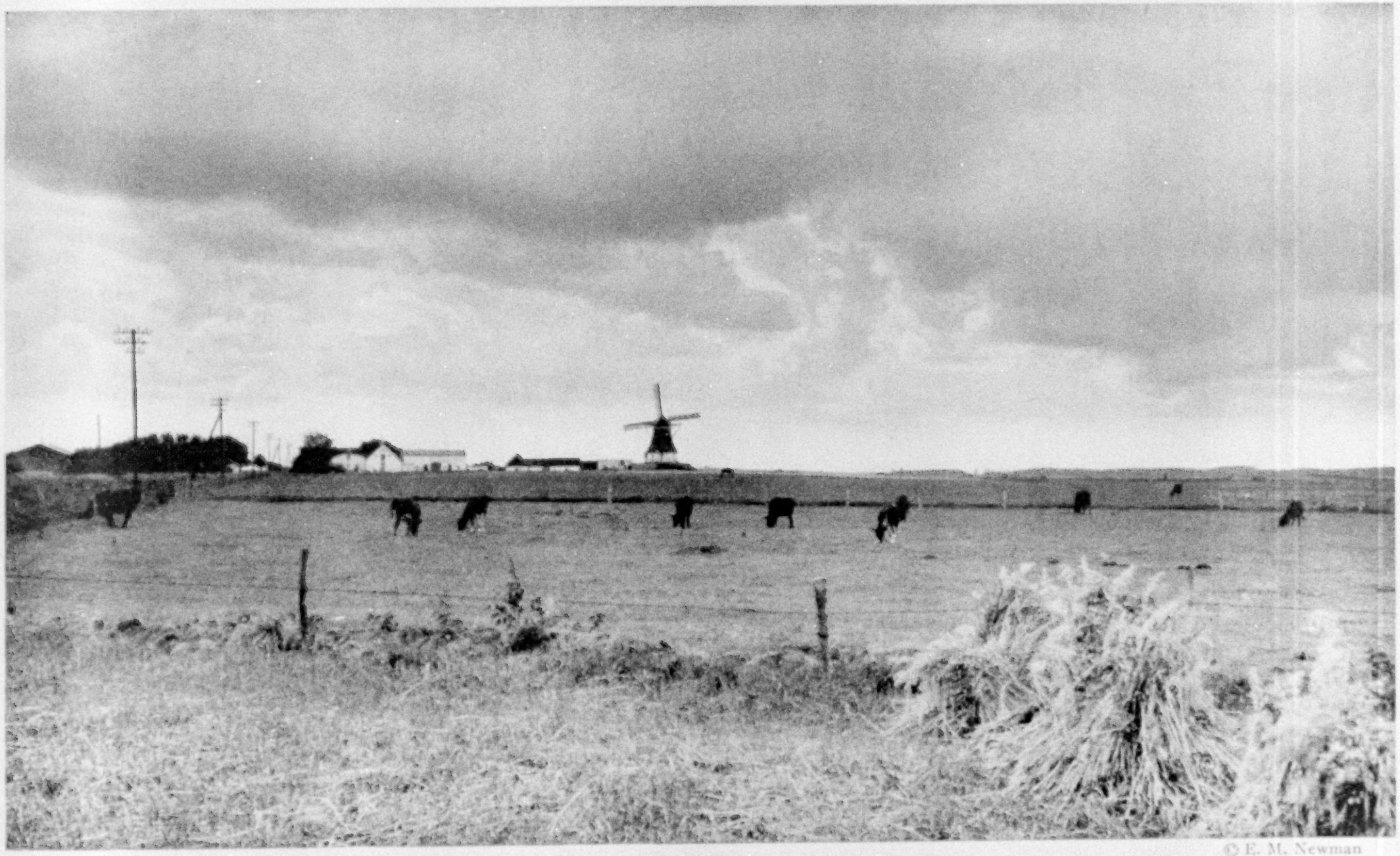
STUDENT LIFE IN A TYPICAL SCHOOL FOR THE PEOPLE

The special "Report of the Board of Education of Great Britain" of one of the largest schools in Denmark, that of Vallekilde (in northern Zealand), describes better than any words of mine what occurs in a typical school for the people.

This British report and that other British report made by Mr. T. P. Gill and Sir Horace Plunkett are the best foundations one can have for the agricultural system of Denmark as seen by keen observers. Speaking of Vallekilde, the special report says:

"The main object of this school is not to impart to our pupils a mass of useful information—that is only a secondary aim. The principal aim is to impart to them a spiritual view of life, so that they may see there is some sense in their existence and some connection in all that happens, in little as in great events. They will thus be prepared to enter on the work of life with good hope and faith, the faith that there is a direction from above in all that happens.

"The students are of all ages over eighteen years, most of them being twenty and twenty-five, and come from all parts



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A DANISH LANDSCAPE

There is scarcely a hill worthy of the name in all Denmark, but the well-kept farms, the fine herds of cattle, and the numerous waterways make the countryside very pleasing to the eye.

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A VILLAGE HOME WITH THATCHED ROOF IN SCHLESWIG

These are some of the people who are keeping pace with the world's increasing appetite for Danish butter and eggs.

Photograph from Emil Opffer

A STREET IN RIBE, CITY OF MANY MEMORIES

Once this was the most important city in Jutland. Near by is the many-gabled old castle, Riberhus, once the favorite residence of Danish kings. A series of misfortunes eventually befell Ribe and the Reformation proved its death-blow. To-day, in inconspicuous quaintness, it stands guard over its memories.

of the country and all classes of society, though the majority belong to the class of small freeholders and cottars, which is so numerous in our country.

"Now I should like to give you the picture of a single day here in the winter months, when we have from 190 to 200 young men under our care from the beginning of November to the end of March.

"The bell rings them up at 7 o'clock in the morning. They then dress, make their beds, sweep out their rooms, wash, and at 7:30 are ready for a cup of coffee and a bun.

"At a quarter to 8 the principal has morning prayers with his household; there also are to be found most of the students, though attendance is not compulsory. First a hymn is sung, then are repeated baptismal vows, the Apostles' Creed, and the Lord's Prayer. Another short hymn brings the service to a close.

GEOGRAPHY IS EMPHASIZED

"At 8 o'clock, four mornings in the week, I give a lecture on geography, and thereby I try to show the audience what relation there is between man and the earth, and how the people in the various countries have succeeded in reducing the soil to subjection. A song suited to the theme is sung both before and after the lectures. On the two other mornings our Free Kirk clergyman lectures on church history.

"Breakfast comes at 9:15 and consists of a couple of sandwiches and a glass of home-brewed ale.

"At half-past 9 the artisans go to a special department in a house a few minutes' walk from here, where they are taught what belongs to their various trades—carpenters in one room, bricklayers in another, painters in a third, and so on. Most of their time there is taken up in learning to execute working drawings. Likewise the fishermen go to their special department, where they are taught navigation and the natural history of fishes and other water animals, sea-plants, etc.

"The farm lads stay here in the central building and are divided into four classes, held in various rooms, and for two hours practice writing and drawing. From 12 to 1 the principal gives a lecture on the history of Denmark, the political history as well as the history of civilization, dwelling more especially on the lives of noted men and women of the last century, whose work we are continuing.

"At half-past 1 comes dinner in the large room below.

"At half-past 2 the artisans and the fishermen go to their own departments again until 6 o'clock. The farm-lads in the meantime are taught accounts and arithmetic for an hour in two classes.

"At half-past 3 these last have gymnastics according to Ling's system.

"At 5 various teachers lecture to the farm lads only, on physics, on the geography of Denmark, on hygiene, and the history of the world.

"At 6 supper is taken.

"From 7:30 to 8:30, lectures for the whole school are given on the history of Danish literature by Mr. Hansen, and on various subjects by the other teachers, Mrs. Hansen twice a week reading aloud from the best of our poets, and I once a week showing lantern slides or glass photographs from all parts of the world and explaining them to the pupils.

"From 8:30 to 9:30 the artisans and fishermen have their gymnastics, while the others have leisure time for the rest of the evening. But you will understand there is not much leisure time for any of them; what there is, is used for writing letters, reading, conversing, playing, or short walks.

"At 10:30 the electric light is put out in the school-rooms."

TEACHERS WELL PROVIDED FOR

No teacher in the rural parts of Denmark "boards around." Married male teachers have seven or eight rooms placed at their disposal, always including a garden, very near to the school-house. The garden is indispensable. Each teacher manages to grow his own vegetables and fruit, and all Danes grow roses in the season.

Unmarried women teachers are provided with two or three rooms, and each teacher has a separate entrance to the house in which she lives.

When a teacher has served in the schools for twenty years he or she is entitled to a pension, which until recently had the purchasing power of from $1,200 to $1,900 in Denmark. The amount of the pension depends on the length of

Photograph from Emil Opffer

FREDERIKSBORG CASTLE

The gables, pinnacles, spires, turrets, and chimneys of this historic pile, occupying three small islands in a lake near Hillerod, north of Copenhagen, are particularly pleasing. Two of the round towers were built by Frederick II in 1562, but most of the building was erected by Christian IV in 1602. In the foreground is the Neptune Fountain, a copy of the original carried off by the Swedes in 1659.

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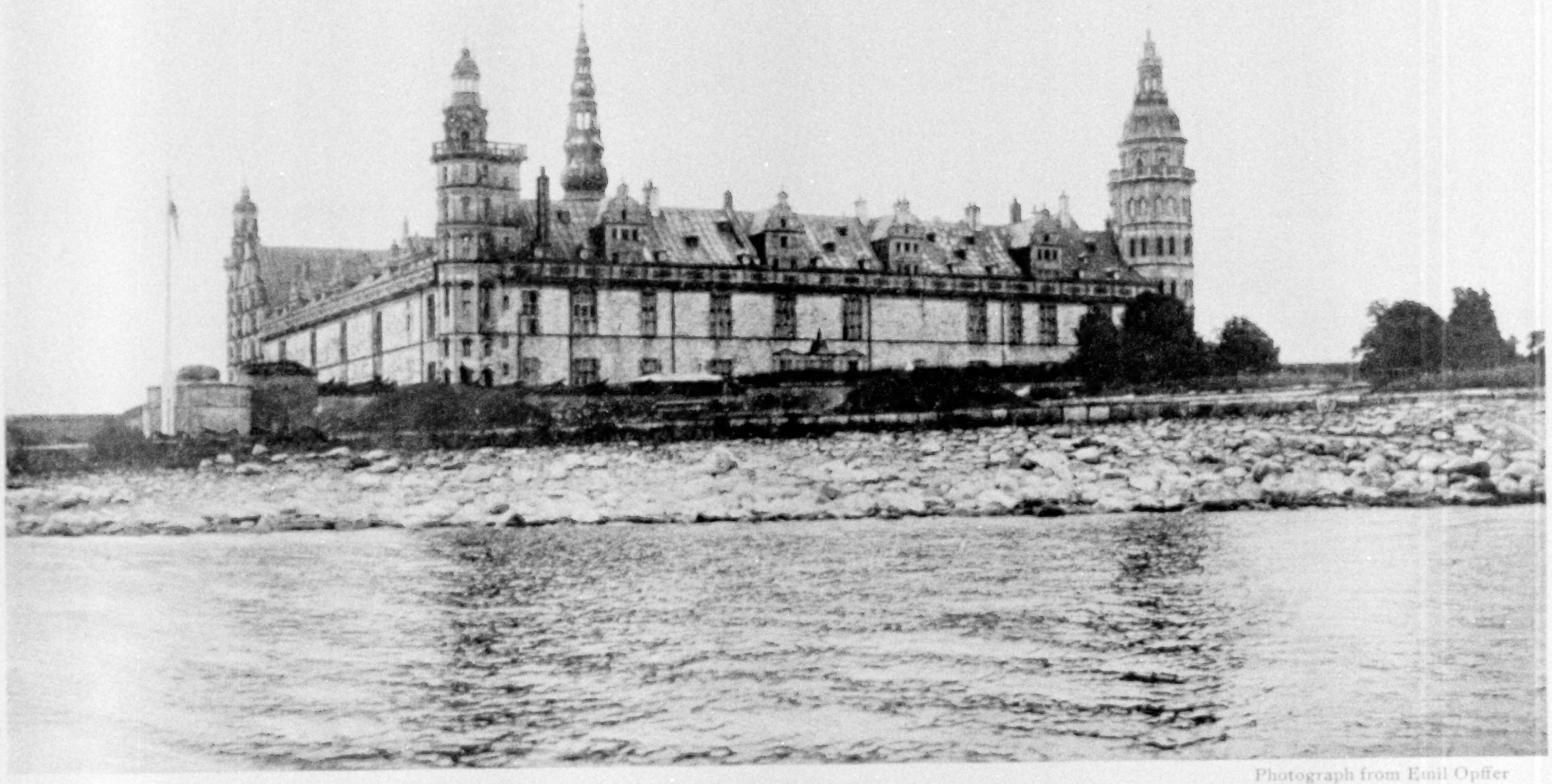
OLD PONTOON BRIDGE CONNECTING SONDERBORG, ON THE ISLAND OF ALSEN, WITH THE MAINLAND

This town in Schleswig is hemmed about by four hills. Its deep harbor has a double outlet.



Photograph from Emil Opffer

WHERE HAMLET PHILOSOPHIZED AND PROCRASTINATED: KRONBORG CASTLE

This is Shakespeare's castle of Elsinore. The legend is that the ghost did not appear on the rampart, but on the outside of one of the towers.

service, and sick or disabled teachers are looked after in a pecuniary way.

Tuberculosis is one of the scourges of Denmark. Teachers who have been afflicted with the "white plague" during their service receive a pension of two-thirds of their salary.

It is rather interesting at this moment, when a serious agitation in this country is beginning for the betterment of the teaching class, to note that the Danish Government provides for the meeting of a growing cost of living by a rule automatically increasing the salaries of the teachers to meet their expenses adequately.

The tendency of legislation in Denmark is to abrogate landlordism without destroying the legitimate rights of property, as the tendency of the coöperative movement was to destroy the inefficient and profiteering middleman.

During the war the decrease of Danish emigration to the United States gave the government a pretext to provide more land available for farming. The new election law, which included suffrage for women, increased the number of voters and likewise the number of those who had the right to own land.

Under the new law, no money was required in order to acquire a piece of land; good character, a certain certificate of energy, and the right to vote were all the qualities necessary. The would-be landowner was obliged to pay interest at 4 per cent on the fixed value of the land.

It must be remembered that in Denmark a farm is not valued by the number of acres it contains, but according to the stock, the implements, and the condition of the soil.

The energy and knowledge of the previous owner are assets to him in disposing of his land.

THE DANISH FARMER THE FREEST IN THE WORLD

The evolution of the laborer on the soil can be easily traced in Denmark through the growth of the democratic spirit, which gradually destroyed serfdom, to the present time, when the Danish farmer is perhaps the freest in the world.

The constitution of 1848 liberated Denmark from a condition of dependence largely brought about by the gradual transference of all power to the king or to the aristocratic landowner, and the destruction of the ideals of the Middle Ages in Denmark.

It is a curious fact that in Denmark today, where the great landowner is not an absentee and has no tradition of absenteeism behind him, the common people have an almost bitter antagonism toward the aristocratic caste. And this is all the more strange, since the great landowners in Denmark till their soil and make it productive.

The complaint that the English agriculturist makes, that thousands of acres of land are mere unproductive pleasure grounds for "the dukes"—not so long ago the objects of Lloyd George's antagonism in England—would be groundless in Denmark.

THE LANDOWNING ARISTOCRACY MAY DISAPPEAR

Just at this time it looks as if the Danish landed estates would be cut up into comparatively small holdings. The abolition of the majorats, which practically means the disappearance of the law of primogeniture and of the law of entail, would mean the disappearance of a landowning aristocracy.

There is an aristocracy in Denmark, an aristocracy of a very high class, as a rule, but it has lost its privileges. Its titles have even less value socially than they have in France, which is a republic, and, under the usage which makes all the sons and daughters of a count or a baron counts and countesses or barons and baronesses, titles soon lose their distinction, and new titles of nobility are no longer given.

The aristocracy, which for a long time controlled the Upper House, fought hard against the subdivision of the land, and its members were not sympathetic with the Danish system of credit banks, by which any man of good character, with a very small sum of ready money, might be able to own a farm.

The would-be farmer must be over twenty-five and under fifty years of age and he must have worked in agriculture for four years. Two reputable citizens are required to sign a guarantee as to his standing in the community and his reputation for honesty. He then offers to pay one-tenth of the cost of the land and a certain sum in addition as a surety that

Photograph from Gilbert Grosvenor

A DIP IN THE BALTIC AT BORNHOLM

The main mass of this island is granite, worn smooth by the great Scandinavian glaciers. Its rock-crystals have made it renowned. The inhabitants manufacture porcelain and terra-cotta and fish in the surrounding waters. Only recently has so-called promiscuous bathing (men and women on the same beach) become customary at the Danish seaside resorts.

his farming may not be an utter failure. These conditions being fulfilled, nine-tenths of the cost of the farm, which includes live stock, etc., is furnished by the state.

The Mortgage Bank of Denmark is behind him and the conditions do not impose on him too great a burden. In 1850 the total number of small farms was 180,090. In 1905 there were over 289,000. During that period the number of men who rented farms declined from 42.5 per cent to 10.1 per cent.

Mr. Harald Faber, in his report, tells us that of the total population engaged in agriculture in 1911, 535,758 were employers and their dependents and 399,534 were employees or their dependents.

It is argued against this system that many men buy small farms on credit, make improvements beyond their means, and go too much in debt. There are cases

Photograph from Emil Opffer

AN OLD CHATEAU AT NYBORG, ON THE ISLAND OF FÜNEN

Odense, the capital of the island, was the home of Hans Christian Andersen, and the house in which he was born is now filled with memorials of this famous creator of fairy lands and people.

of this lack of prudence, it is true; but, as a rule, the system seems to have worked well, and if it continues to do as well, the majority of the agricultural Danes—the vast majority—will soon be masters of their own soil.

IN DENMARK NEARLY EVERY MAN WORKS HIS OWN FARM

The habit of farming land on shares, which we find in some of the Southern States, where an enterprising colored man often becomes the arbiter of the white owner's destiny, does not obtain in Denmark. Every man works his own farm.

In the summer months, however, over 20,000 Galicians and other immigrants come into Denmark to dig the beet root and to do other jobs which the Danish farmer prefers not to do. The large-estate owners are obliged every year to provide facilities for these alien laborers, who go home in the autumn quite content with the result of their work.

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"LITTLE MOTHERS" AND THEIR SISTERS IN SCHLESWIG

By the Treaty of Versailles the homeland of these little folk was returned to Denmark after having been ruled by Prussia since its seizure by that country in 1864.

Denmark is not an industrial country in the sense that it is a country of manufacture. The scientific treatment of one of the worst soils for agricultural purposes in Europe, joined with the equally scientific system of coöperation, enabled it to monopolize the export of butter, bacon, and eggs into England and Germany. Before the war the Danes supplied the breakfast table of the British, and the export of milk and cream, and even of beef and hogs, into Germany taxed their capacity.

DANISH BUTTER HAS A WORLD-WIDE REPUTATION

Danish butter has the deserved reputation of being the best in the world. It is standardized, and the government itself would be held responsible for any falling off in the guaranteed quality of this product. It is not inexpensive, most of it is exported, and it seems rather paradoxical that in this country of butter the majority of the people eat a very high-grade margarine.

Every Danish egg is dated; but although the Danish fowls are prolific and the eggs are carefully looked after, yet the Danish egg does not enjoy the deservedly great reputation of the butter and the bacon.

In spite of the old-age pension, of the grants to widows, of the unemployment insurance, of the upkeeping of admirable hospitals for the poor, the industrial classes in Copenhagen indulge frequently in strikes.

Of late the American-Scandinavian Line has been put at a great disadvantage because of the recurrence of these strikes. One result of them was much deplored in Denmark. During the shortage of butter in the United States, cargoes to supply this shortage were sent to America; but the strikers delayed their transit, and the butter, when it arrived here, was not equal in quality to the standard prescribed in Denmark. Complaints were made from this side, and a committee of the great Danish butter exporters in Denmark came over here to make their explanations and to show our people what Danish butter at its best really is.

Employers of labor in Denmark are not without fixed responsibility. For example, when I was Minister Plenipotentiary at Copenhagen I followed a rule obligatory on everybody except diplomatists: I kept a bed in a hospital for my people, contributed to their insurance, and altogether followed the laws which prevent an employer from dropping a servant penniless whenever the caprice seizes him. In the country an employer must give his servants a notice of six months; in the city, a month is sufficient.

I recall the fact that one of my footmen, having been sent to a hospital for two weeks, complained that "they gave him everything except wine, and that he was expected to pay for!"

One of the best-known captains of industry in Denmark is Admiral de Richelieu. He was instrumental in encouraging the introduction of the Diesel motor, and some of the earliest and most effective experiments in the application of the Diesel motor to navigation were made in Denmark by the East Asiatic Company, of which he is a director.

PATRIARCHAL TRADITIONS MAINTAINED IN COUNTRY HOMES

The cultivated Dane has very esthetic tastes, and it seems a pity that the life of the country houses of the Danish aristocracy should disappear when their lands are divided. A typical Danish castle is that of the Count and Countess Raben-Levitzau. In country houses like theirs the old Danish traditions—rather patriarchal—are still kept up.

At Christmas, for example, when the Christmas tree is lighted on the sacred eve, the master and mistress of the house join hands with the servants and sing the old Danish hymns around the blazing pine or fir.

Nobody that has not lived in Denmark and known the charm of its family life can appreciate what the term *hyggelig* means. It is something even better than the German word *gemuthlich* or the English word "cozy."

At present, owing to the proximity of a struggling Germany, to the unrest in Russia, to the financial difficulties in England, and its own necessity for readjustment, Denmark is not as prosperous as usual.

At the same time, it has great resiliency. Wealth is rather equally distributed; the great fortunes gained during

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A QUARTET OF SWEDISH VISITORS IN COPENHAGEN

These peasants are wearing the picturesque costumes of the Mora, Leksand, and Rattvik region around Lake Siljan, one of the most fertile and attractive districts in Sweden.

the war by a small circle of profiteers have disappeared. The Danes took measures early to prevent the dumping of cheap German goods into their country, and, at least, they have gained one advantage from the war—an advantage not so great as it ought to have been, however—the return of a part of Schleswig, stolen by Prussia in 1864, to the mother country.

THE UNITED STATES CAN LEARN MUCH FROM DENMARK'S SOCIAL REFORMS

Denmark is intensely interesting to the student of social reforms, because it has put most of them in practice. Even the most liberal of its Liberals is constructive. There is no anarchy in Denmark and little chance for the progress—much less than in Sweden—of the Bolsheviki.

The United States might learn much from the example of this little country as to the care of that Danish machine for giving milk—the cow. As to the abrogation of those grafters who deprive the farmer and the ultimate consumer of their just rights, we have many lessons to learn.

But some of the enthusiastic advocates for our imitating the Danish methods go too far. A country formed of forty-eight different States, each with its own peculiar problems, cannot be guided in the same way as a small country which is almost purely agricultural and where the industries concern themselves largely with export facilities.

Denmark, it must be remembered, exists practically for the production of certain necessaries of life, and therefore all its laws are made for the protection of the farmer, but not for the monopolization by the farmer of rights that belong to other people.

The farmer in Denmark is never a speculator. It is impossible that a "corner" should be made in any of his productions. These truths might well be considered by our farmers themselves in rural communities and not left to the vagaries of professional legislators.

In the art of painting and sculpture, in literature, in science, Denmark has no mean place. It is true that all her sculptors have not the reputation of the famous Thorvaldsen. There, for instance, are Jericheau, Bonnesen, Kai Nielsen, and Einar Jonsson. Cellini has no rivals in Denmark; but A. Michelsen, the court goldsmith, has executed some very exquisite gold and silver vessels and ornaments designed by the disciples of Cellini.

A Danish lady, as a rule, does not care to wear a piece of jewelry unless it is especially made for her. In our country, at a great ball or a banquet, one will see a score or two of "sunbursts," or bracelets, or pendants almost all alike. No matter how simple the buckle, or the bracelet, or the necklace of a cultured Danish woman may be, she will not have it resemble the ornaments worn by another person.

This spirit assists very greatly in the production of artistic handicraft.

NOTABLE FIGURES IN THE WORLD OF LITERATURE

Of all the Danish authors, Georg Brandes has the greatest international reputation. Next to him comes Harald Høffding. Georg Brandes has a remarkably synthetic mind. He is the first and most important of Danish internationalists in the literary sense; but his hedonistic philosophy has had a deplorable effect on the Danish intellect, an effect which has been combated by the constructive philosophy of Harald Høffding.

Johannes Jörgensen is, as to form, the most exquisite poet in Denmark, and his *Clock of Roland*, a cry of despair and triumph for Belgium, is one of the most justly celebrated of all the books inspired by the late war.

Johannes V. Jensen is a novelist who deserves his great literary reputation. Pantoppidan and Martin Nexø have a large following.

Of the painters, Kröyer is the most lucid, the most luminous, and probably the one who will be in the future better known and long remembered. Laurits Tuxen is best known in England as a modern historical painter. Julius Povlsen deserves a high place; and Zahrtmann, whose coloring is strangely misty and individual, deserves to be well known in our country. Zahrtmann's pictures flame with color, seen through a mauve haze.

The most charming painters of delicate interiors are Hammershöi and Helsö; Skovgaard is an intensely religious painter, with much of the quality of Fra

Angelico in his work, and next to Joachim Skovgaard, in this *genre*, is his brother Niels. The newest school of artists is always in advance of last year's eccentricities. It tries "to go one better" than Paris!

One of the most beautiful buildings in Europe is the new Town Hall of Copenhagen, created by Martin Nyrop. It is a worthy companion of that admirable edifice, the Bourse, which dates from the reign of Christian IV (see page 121).

DANISH ART IS NEVER COMMERCIALIZED

The saving quality in Danish art is that not even its minor productions are commercialized. The royal Copenhagen pottery, which would be popular in the United States if our absurd tariff did not make its cost almost prohibitive, is an example of this. It developed from the imitation of the Dresden china by the makers of porcelain in Denmark, under the patronage of Queen Juliana Maria in the eighteenth century. It is unique, and as beautiful and as true to nature as it is unique.

The best thing that I, as an amateur, can say of Danish art, is that it is individual, national, and, like Danish humanism and science, is never followed simply with a view of gaining money.

If I seem too enthusiastic as to the spirit and the material of this little country, it is because I have lived there; I am not blind to its defects. I regret the decline of the sturdy religious spirit of the older days and of an increase in the laxity of sex relations, which results from the decay of Christianity and the growing tendency, not confined to Denmark, of the new paganism.

However, if the Danes love Denmark, it is because their country and its institutions are worthy of love.

PRESENT TREND OF THE GOVERNMENT IS TOWARD PATERNALISM

It is only fair to add that the burden of taxation on the well-to-do in Denmark is almost intolerable at present. The legislation in favor of the laboring man has in some instances resulted, as paternalism in government generally results, in making him feel that the state owes him a living, whether he works or not.

The late financial crisis in Denmark was made more alarming by the lockout of the employers in February. Strikes followed, and during the winter over a hundred thousand men were thrown out of employment. The farmers suffered, not only from the usual coldness of the season—ice stopped navigation at Copenhagen and Esbjerg—but from the determination of the dock laborers at the seaports to impede exports until their demands were complied with. In consequence the banks have suffered. The farmers took the matter in hand and did the work of shipping their own exports.

Economic readjustments have begun. The lesson taught by the vagaries of the radical government will have the effect of teaching the Danish folk that consideration must not be shown for the workingman only. If capital is taxed above its earning capacity for his apparent benefit, it ceases, to his detriment, to function normally. But the Danes are quick at learning by experiments.

Notice of change of address of your GEOGRAPHIC MAGAZINE *should be received in the office of the National Geographic Society by the first of the month to affect the following month's issue. For instance, if you desire the address changed for your October number, the Society should be notified of your new address not later than September first.*

THE FIGHT AT THE TIMBER-LINE

By John Oliver La Gorce

Author of "Warfare on Our Eastern Coast," "A Battle Ground of Nature," "Roumania and Its Rubicon," "Devil-Fishing in the Gulf Stream," "Pennsylvania, the Industrial Titan of America," etc., in the National Geographic Magazine

AMONG all the stirring struggles that the forces of Nature stage in their wars over disputed territory and their strivings for supremacy, there is none more intense or unrelenting than that at the timber-line, where the advance guard of the Legions of the Forest engages in mortal combat the entrenched troops of King Frost.

One would have to wander far afield indeed to witness more brilliant tactics or to meet with such masterful strategy as the tree armies employ.

A far-flung line is this forest frontier, and it has more separate fields of conflict than there were when the world's effort to break Central Europe's stranglehold upon civilization was at its height.

There are three principal battle areas where the forces of King Frost are entrenched against the trees—the Arctic citadel, the Western America line, and the Himalaya-Alps front. Isolated campaigns rage on lone peaks and on short and sequestered mountain ranges.

On the Arctic front the contending forces are drawn up in battle array at sea-level.

In the Western America theater, the war zone climbs higher and higher, until, at the Equator, the pitiless strife is waged in the rarefied atmosphere of twelve thousand feet or more. Then it sweeps down again until it reaches sea-level at the Strait of Magellan end of the Andes.

In the hostile area that stretches along the Himalayas and the Alps from western China to eastern France, there are numerous quiet sectors, but a strategically continuous front.

TREE SOLDIERS ENDURE THE GRIND OF AN UNCEASING CAMPAIGN

Hardy as trained-to-the-minute men are the tree soldiers that can stand the awful grind of the unceasing campaign. The training camps are scattered all over the salubrious country of the back areas, and only picked troops of tested courage ever reach the firing-line.

Tropical trees are too soft of fiber for aught but home-guard duty and last-ditch-reserve support. After a few hundred miles poleward or twice as many feet skyward they gradually drop out, and hardier and better trained substitutes fill their places, until, at last, the troops that started are, without exception, left behind, and fresh ones everywhere reform the serried ranks.

Where the last palm that typifies the tropical soldiery drops out, a third type begins to fall in line, and by the time the broad-leaved troopers begin to grow jaded, the keen, needle-leaved legions from the pine woods are ready to fill the place of the stragglers, in order that the ranks may be kept full.

629 DIVISIONS CALLED TO THE COLORS

How heart-breaking and stamina-testing the long march proves to be is strikingly shown by the record of the 629 divisions that have been called to the colors between sea-level on the Florida coast and timber-line in the Colorado mountains—including the palm and the palmetto divisions, the oak and the hickory, the maple and the birch, and other crack outfits.

Gradually the divisions are reduced, by desertions and straggling, to brigades, regiments, battalions, companies, and squads, and at length formations disappear; so that when, finally, the battle field itself is reached, all but a beggarly score are missing, and even these survivors of hardy divisions, the regulars of the tree armies, have been decimated.

And yet, when the battle front is reached, the Titanic struggle is still to open. No operations in mass formation are possible there. The pine divisions have advanced in great, dark columns, now seeking protection from the bombing expeditions of the air service, now accepting the support of the shock troops of the birch divisions, and again bearing the brunt of the enemy's artillery fire of hail and sleet.

Photograph by A. J. Baker

CAUGHT ON THE WIRE

King Frost marshals his forces in Glacier National Park and casts his pall of snow over the scouts sent forward to dig in.

The front-line trenches are thinly held by those who make up in courage and bulldog tenacity of purpose what they may lack in numbers.

Let us brave the dangers of the firing line to get a look along these trenches.

As one's eyes sweep the situation on any narrow sector, the tragedy of the struggle stands out in bold relief. Here a small, knotty and gnarled tree occupies an unprotected listening post; there a small squad holds a shell crater where it would seem that no living thing could exist.

NO SUCH THING AS RETREAT

However furious the conflict, there is no such thing as retreat. Every tree soldier stands rooted to the terrain it has taken, dying if need be, but never falling back. The thousands of mangled and maimed who fight on so long as a single spark of life remains, show what courage the tree troops possess.

The barrage of the wind may pitilessly beat upon them, the machine-gun fire of the sand blast may transform them into animated totem poles, but not until the hand of death itself is laid upon them will the trees surrender. Everywhere the whitened corpses of the unburied dead are to be seen, and their bones, denied the privilege of sepulture, will remain until the desiccating power of the powder-dry atmosphere causes them to crumble—mute witnesses of tragic bravery.

Watch the living as they fight, some with their stormward sides as bare of branches as a hewn log, and on their leeward sides only enough limbs to convert them into weather vanes; others with their very heads bowed to the ground. Even the whitebark pine, representative of that great host of sky-seeking trees which rear their proud heads above the remainder of the forest, on the principle that they must aspire or die, creeps along the ground, like moss, with never a hint

Photograph by S. H. Willard

THE SKIRMISH LINE NEAR INDIO, CALIFORNIA, WHERE THE BATTLE IS WAGED AGAINST DROUGHT RATHER THAN WIND AND SNOW

No spring supplies these lonely palms of the desert with water.

of the proud carriage and high head that characterized it when on dress parade in the regions behind the war zone.

As one stands at timber-line, there comes to mind that splendid eulogy of those "children of the rock, gray moss, dark shrub, the meager chamois flock," whose natures have been tempered and trained until they are able to stand "exemplars of creation's plan that all shall fight for life, and those shall live who can."

A TINY VETERAN OF 255 YEARS OF BATTLE

The hardships endured by the tree soldiers can be appreciated only by those who have observed the battle at close range. John Muir tells of finding a pine warrior whose trunk was only four inches in diameter and whose topmost tassel reached a bare three feet from the ground; yet when he counted the rings that constituted its service stripes, he found it to be a veteran of 255 years of duty on the firing line.

It is fascinating to study the strategy and tactics of the forces of King Frost and to examine their methods of warfare. They have long since discovered that the masks the trees have adopted are effective against the gas of sheer coldness, the most frigid known spots on the earth's surface being held by trees. But if the trees can stand all attacks of cold, they suffer excessive casualties at the hands of the winds.

The timber-line is no shortest-distance-between-two-points affair. The fortunes of the battle and the terrain both tend to make it as irregular and as sinuous as was ever the battle line that stretched from Switzerland to the sea during the World War.

The power of the trees to adapt themselves to their environment is amazing. In the tropics and the temperate zones, vegetation is killed by freezing, as any one walking through a vegetable garden after Jack Frost has made a raid on a cold autumn night can tell from the blackened leaves. But in timber-line districts it is not the sudden frost that injures vegeta-

tion. Plant life there can stand freezing without difficulty. It is rather the thawing process that hurts in such regions.

The wonderful adaptability of plant life to its environment is to be seen on the tundra of Russian Lapland. There the thermometer crosses the freezing point several times a day, but the leaves on the stunted growth that occurs in spots do not seem to suffer. So, too, in the Alps some species of gentian and ranunculus, even when in full blossom, spend their nights frozen stiff and their days as bright and chipper as if they had never known a chill moment.

These flowers have adjusted themselves as thoroughly to the cold at timber-line as the cactus has to the heat in the tropical desert. And the trees are led by these "little children" of the timber-line in adjusting themselves to the inhospitality of their environment.

The character of the warfare on the sea-level polar timber-line differs from that on tropical mountain heights. On the former there is a homogeneity of forces not encountered in the latter.

Everywhere on the polar timber-line the trees without exception become stunted and dwarfed, degenerating into gnarled growths that little resemble their stately brethren of milder regions. Neither the broad-leaved nor the needle-leaved species, as a rule, attains a height of more than three feet.

THE MARCH OF THE TREE HOSTS UP A MOUNTAIN SIDE

The mountain timber-line, however, has highest interest for most people, since it is in a theater of war accessible to any hardy mountain-climber, who, as a military observer, may wish to watch the great battle.

A hundred romances are concentrated in the story of the march of the trees up the mountain side toward the battle front. Far down on the plain out of which rises a tropical mountain like Orizaba, in Mexico, there is luxuriant vegetation. If the rainfall is plentiful, it grows abundant on the lower slopes. Palms and bananas are the characteristic trees of the first two thousand feet.

However, when that elevation is reached these have largely given place to the tree-ferns and figs, which, with allied species, now take up the climb, and "carry on" until they come to the 4,000-foot level. Here they, in turn, begin to drop out, their places being filled by laurels, myrtles, and related species.

These drive on another 2,000 feet, giving way, in their turn, to the broad-leaved evergreens, which take up the climb at about 6,000 feet and march on until they reach 8,000 feet. Gradually they fall by the wayside and their ranks are filled by the summer-green broad-leaved tree.

At 10,000 feet the conifers fill up the gaps and finally arrive at the trenches.

In many mountains there are variations in the vertical distances to which the different trees climb, and in some cases one or another of the list of reservists is almost entirely missing. It is a singular fact that the various types of trees are able to climb higher on mountain ranges than on isolated peaks, and that, as a rule, the timber-line is higher on long ranges than on short ones, as if confidence and courage were imparted by a dense formation of fellow-fighters.

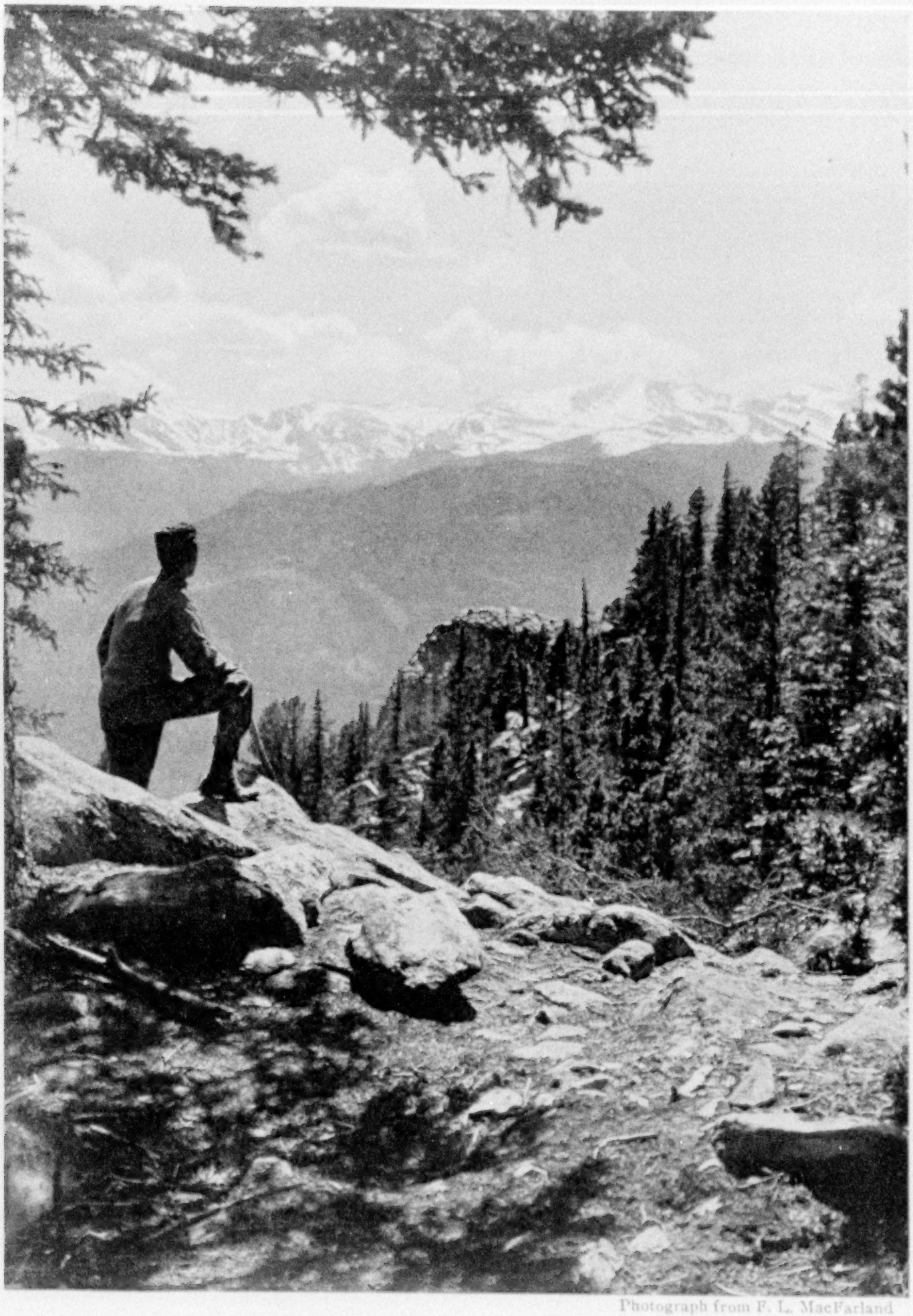
THE WAR CORRESPONDENTS OF THE TIMBER-LINE BATTLE FRONT

The great contest at timber-line, as in human warfare, has called forth a large number of war correspondents. One of the ablest of these was John Muir, whose love of Nature is an inspiration for every one who reads his books. And the best-loved part of Nature to him was that wonderful country, the Sierra region of the Pacific Coast.

Like the true war observer, he wrote with equal charm of the larger strategy of a big drive and of the brave deeds of a single warrior. For him the whitebark pine had a particular interest, not less from the methods of its fighting than for the unwonted heights to which it bravely climbs.

In the Yosemite mountain forests he found it always in the front-line trenches. Where he first encountered it on the march up the mountain it was an upstanding tree trooper, some forty feet high; but as he followed its footsteps up to the regions where, on the rocky, wind-swept slopes, the snow lay deep and heavy for half the year, it grew shaggy and squat,

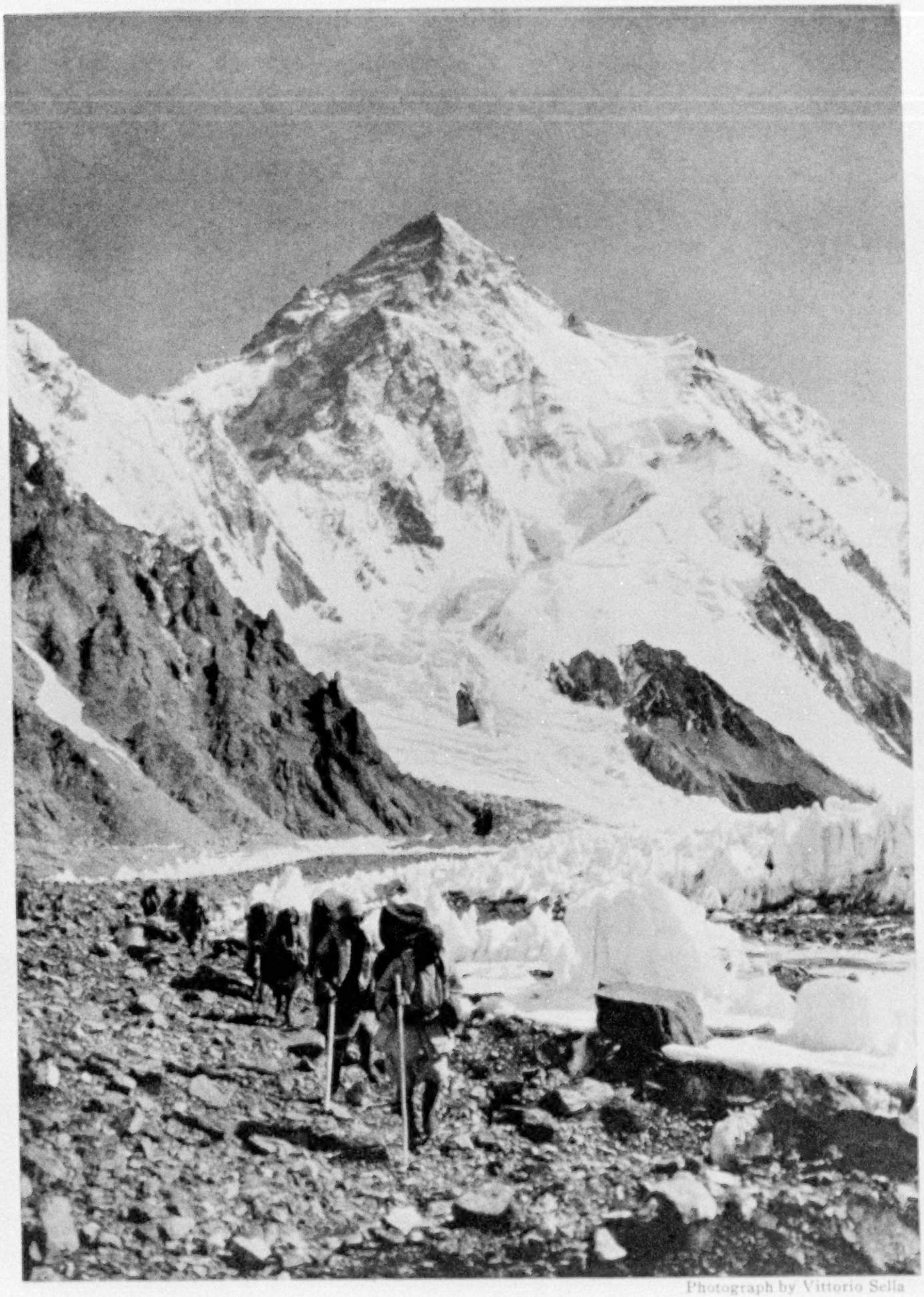
XUM



Photograph from F. L. MacFarland

MOUNT EVANS, COLORADO, FROM WINDOW LEDGE

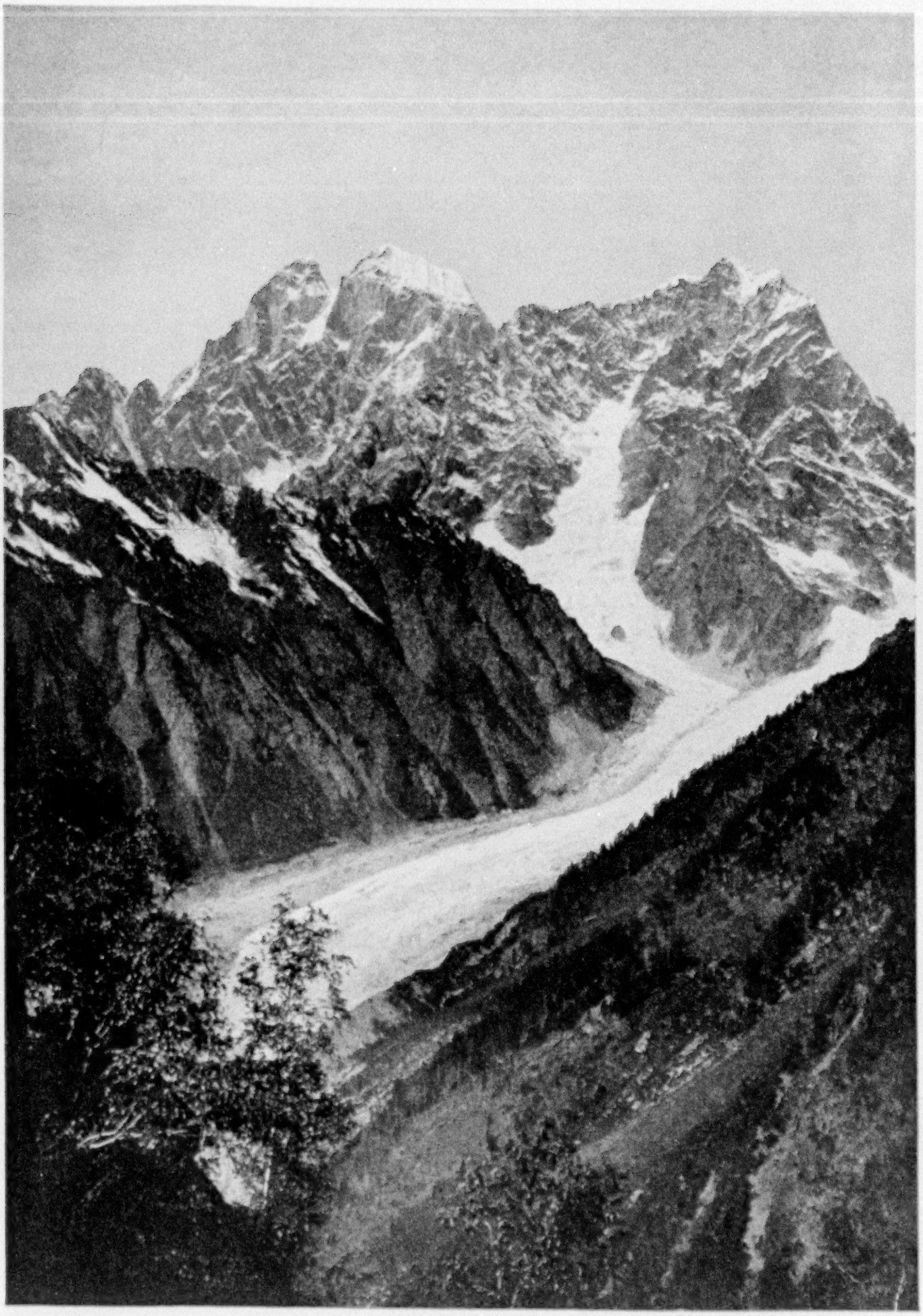
The proposed Mount Evans drive will connect the Denver Mountain Park System with this, one of the highest peaks in the United States, elevation 14,259 feet. The city of Denver has already built 10 miles of this drive to Window Ledge, on Squaw Mountain. The United States Forest Service has built an additional 10 miles to Echo Lake. Most of the remaining 20 miles of the drive will be above timber-line, reaching an elevation of 12,740 feet at Summit Lake, on Mount Evans.



Photograph by Vittorio Sella

THE "NO MAN'S LAND" OF THE TIMBER-LINE WARFARE

On the roof of the world, among the eternal snows of the Himalayas, even the most intrepid tree combatant dare not stand against the heavy artillery of avalanche and the ceaseless machine-gun fire of ice-storm.



Photograph by Vittorio Sella

THE BATTLE LINE NEAR THE CREST OF THE CAUCASUS

Remorselessly and irresistibly, the glaciers crush through the mountain passes, giving the trees little chance for a foothold, but even here, on the very shores of the ice rivers, the chasseurs of the forest stand their ground.

Photograph by Vittorio Sella

STORMING THE CAUCASUS HEIGHTS IN MASS FORMATION

Long ere the snow-line is attained, however, the trees will be riddled by enemy cold, and only a stalwart few will ever reach the front-line trenches.

Photograph by Vittorio Sella

WHERE MEDIEVAL METHODS OF WARFARE STILL OBTAIN: A SCALING PARTY OF FLOWERING APRICOT TREES HALTED BY A STREAM MOAT IN THE HIMALAYAS

Unable to cross the swift-flowing mountain torrent, the impotent forest troops sit down before the rock-ribbed walls of the fortress heights. But no timber-line battle was ever won by Fabian tactics.

Photograph by Photo-Craft Shop

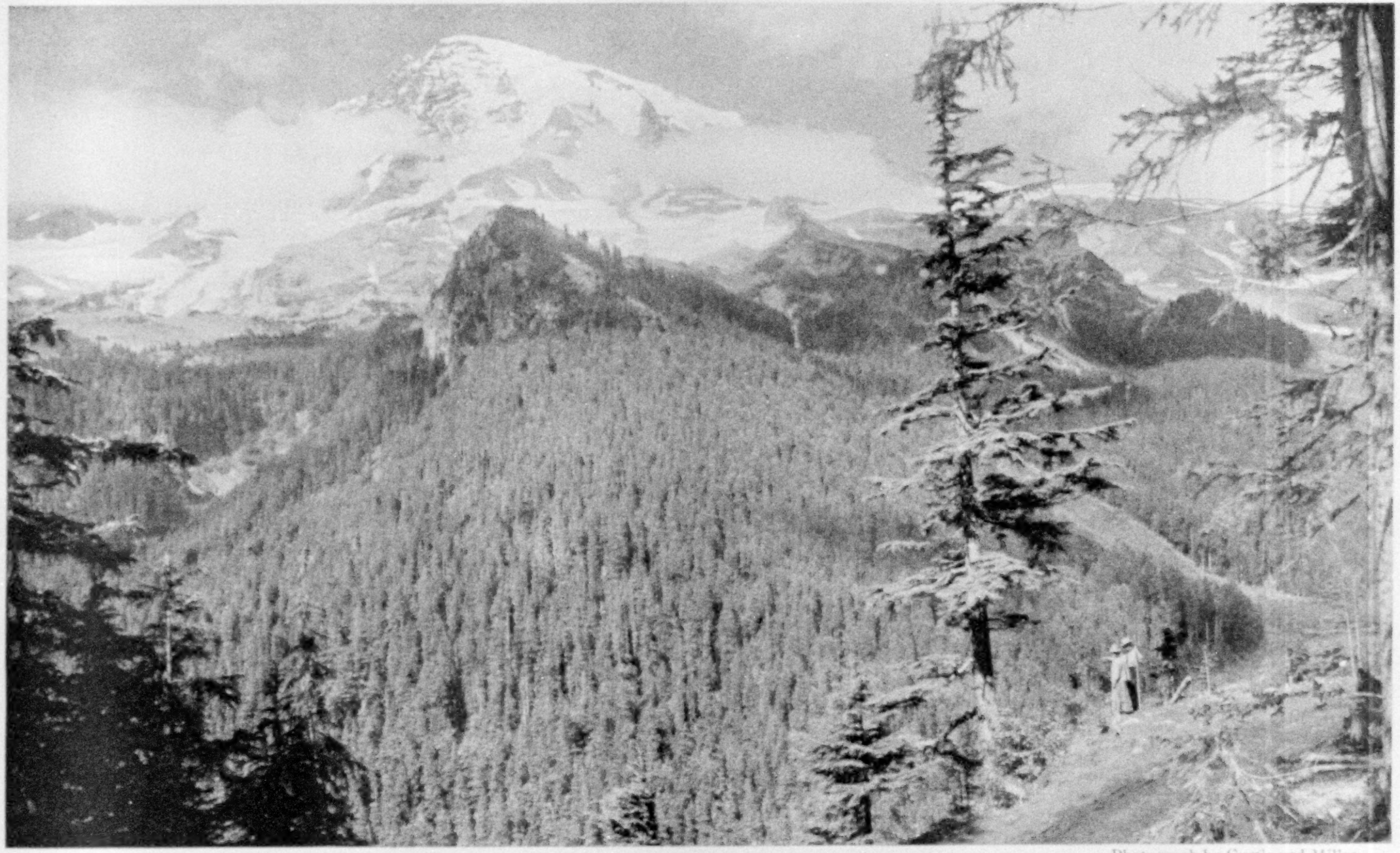
"THE OLD GUARD DIES; IT NEVER SURRENDERS"

Making a final stand on the timber-line of Mount Baldy, Colorado, at an elevation of 11,500 feet. "The front-line trenches are thinly held, but those who man them make up in courage and bulldog tenacity of purpose what they may lack in numbers" (see text, page 166).

Photograph from L. A. Dollner

HUMAN ARMIES MAY GO INTO WINTER QUARTERS, BUT WAR RAGES FIERCEST FOR THE TREES WHEN BOREAS TAKES COMMAND OF THE COSSACKS OF SLEET AND SNOW

Relentlessly the elements launch their enveloping forces of frost against the forest soldiers; but, like Napoleon's drummer boy at Austerlitz, there's not a sapling among them that knows how to beat a retreat.



Photograph by Curtis and Miller

ON THE TIMBER BATTLE LINE: THE GOVERNMENT ROAD AT RICKSECKER POINT, NEAR PARADISE PARK, MOUNT RAINIER NATIONAL PARK

Photograph by Putnam and Valentine

NATURE UNFOLDS A MATCHLESS PANORAMA OF LAKE AND MOUNTAIN AS THE SETTING FOR THE BATTLE FIELD WHEREON THE TREES AND ELEMENTS WAGE THEIR TRUCELESS WAR

A view of Cascade Lake, Emerald Bay, and Lake Tahoe from the summit of Mount Tallac, California. "The roads by which the trees march to the timber-line usually follow the hollows that reach up to the heights."

Photograph by A. H. Barnes

ADVANCING IN OPEN FORMATION: AN EVENING SCENE IN MOUNT RAINIER NATIONAL PARK

Over the saddle is seen the summit of Mount Adams, 40 miles away.

Photograph by F. H. Kiser

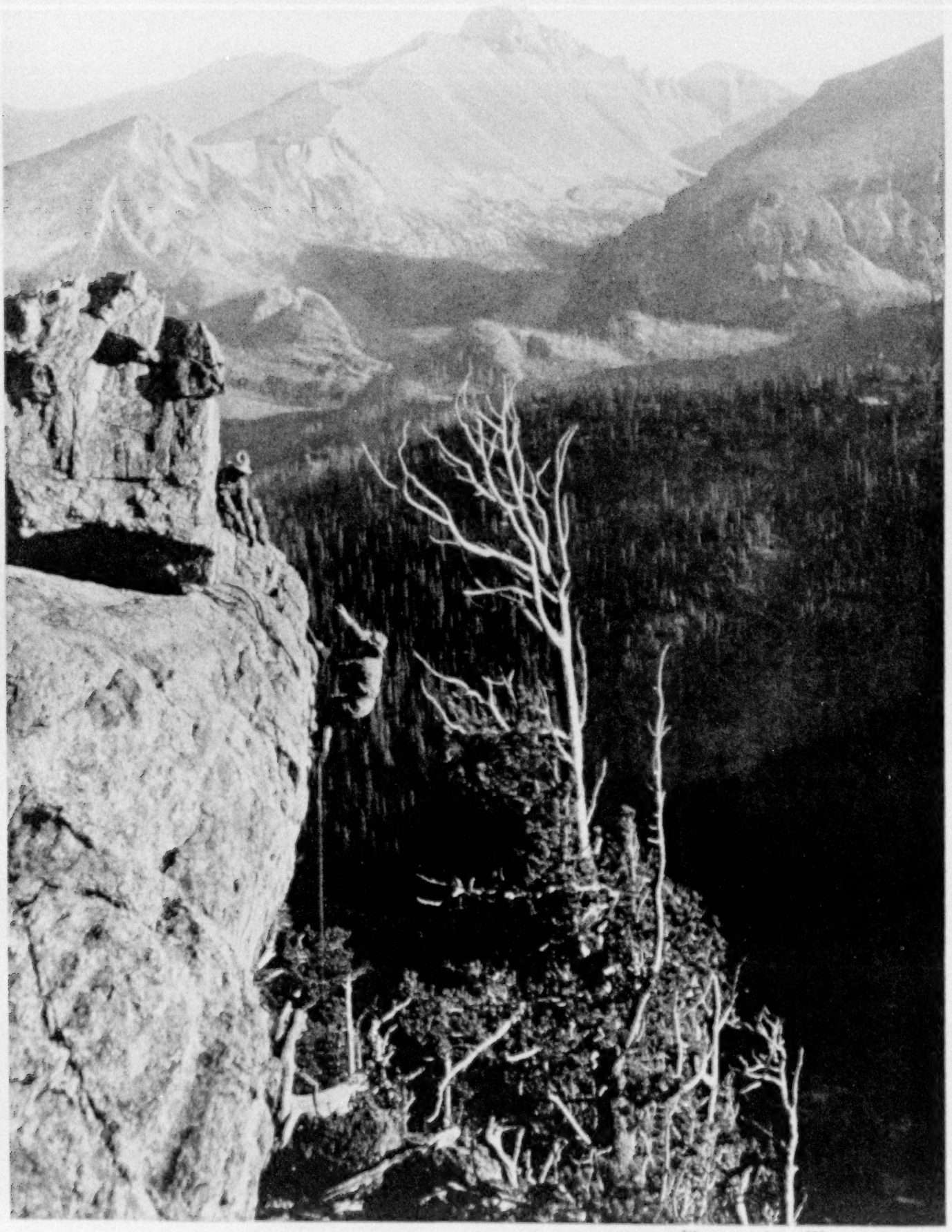
WITHSTANDING THE ATTACK OF WINTER

Trees on the slopes of Crater Lake, Oregon. The summit of Mount Scott is seen above the clouds in the distance.

Photograph by Vittorio Sella

AN ADVANCE DETACHMENT OF TREES RECONNOITERS THE IMPREGNABLE SUMMIT OF SNOW-CLAD MOUNT SPEKE, IN THE RUWENZORI RANGE, EQUATORIAL AFRICA

Although the Ruwenzori Mountains lie almost on the Equator, their highest peaks rise above the limits of perpetual snow, and, strive as they may, the arboreal armies are turned back; for here, indeed, "They shall not pass!" (See also page 184.)



Photograph by Wiswall Bros.

CLIMBING TO AN EAGLE'S THRONE ON FLATTOP MOUNTAIN, OVERHANGING THE GREEN WATERS OF DREAM LAKE

It is around these rugged summits that the great black eagles of the Rocky Mountain National Park can be found. Two bold climbers are seen endeavoring by means of ropes to scale the cliffs and arrive at one of these eagle aeries.

Photograph from A. C. Loveckin

LIKE SIRE, LIKE SON: DESCENDANTS OF THE ABORIGINAL PALM TREES OF AMERICA HOLD THE TERRAIN WON IN CALIFORNIA BY THEIR FOREBEARS CENTURIES AGO

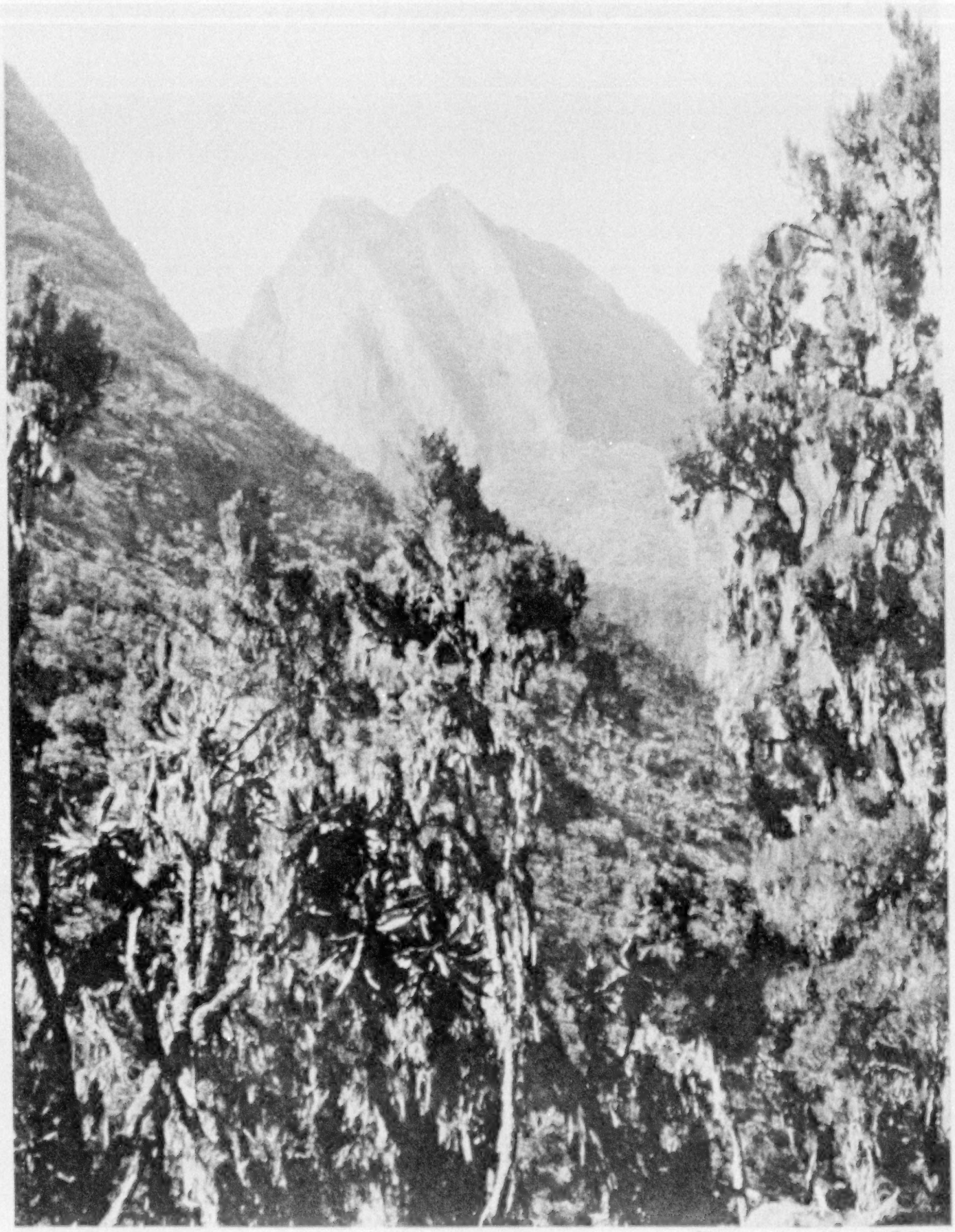
In Palm Canyon, Riverside County, California, grow the only aboriginal palm trees in the United States. A movement is on foot to set aside as a national monument the area in which these trees flourish.

XUM

Photograph by Vittorio Sella

A ROYAL BATTLE GROUND OF CENTURIES

From this Equatorial East African valley floor the trees surge upward, right and left.



Photograph by Vittorio Sella

THE BATTLE OF THE TREES ON THE RUWENZORI RANGE HAS BEEN OBSERVED BY SOME OF THE MOST FAMOUS FIGURES IN THE HISTORY OF AFRICAN EXPLORATION

Thought by many geographers to be the "Mountains of the Moon" to which Ptolemy and other ancient writers refer, numerous peaks in these mountains have been ascended by Henry M. Stanley, Sir Harry Johnston, and the Duke of the Abruzzi (see also page 180).

crowding close to its fellows and forming with them a crinkled mass so dense and flat that one could easily walk on their bowed heads.

Yet, in spite of its limb-to-limb struggles with the gales and the snows, it clings so earnestly to life that when the short springtime finally comes to its aid, it puts on a new uniform of fresh leaves and bedecks itself in the emblems of courage and victory, gay red and purple flowers, which challenge afresh the lashing winds and the inhospitable soil.

Not only does the whitebark pine fight well, but it fights long. Its highest tassel may come only to a man's waist-line. Standing by it and among its fellows, one might well think that of a sudden he had become a tree in stature, and the trees had been transformed into men in height.

One splendid veteran of scores of hard-fought campaigns was only three feet high. Yet when War Historian Muir interrogated it, the proud reply came that it had been holding its outpost for 426 years. Although its trunk was only six inches in diameter and its height that of a yardstick, it had been campaigning eighteen years when Columbus discovered America.

NATURE'S TRAINING CAMPS AND REST DEPOTS

As Muir climbed to the battle area he gave detailed accounts of the training camps and rest depots he passed en route:

"At an elevation of 6,000 feet above the sea, the silver firs are 200 feet high, with branches whorled around the colossal shafts in regular order, and every branch beautifully primate like a fern frond. The Douglas spruce, the yellow- and the sugar-pines here reach their finest development of beauty and grandeur. The majestic Sequoia is here, too, the king of conifers, the noblest of all the noble race. These colossal trees are as wonderful in fineness of beauty and proportion as in stature—an assemblage of conifers surpassing any other that has ever yet been discovered in the forests of the world."

Another excellent war correspondent of the timber-line struggle is Clarence King, from whose book, "Mountaineering in the Sierra Nevada," the author has

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A GRENADIER WHO HAS INTREPIDLY WITHSTOOD THE ASSAULTS OF THE ELEMENTS CANNOT RESIST THE BROAD-AX OF MAN

"THE BRAVEST OF THE BRAVE"

Staunch even in death, this outpost stands as a monument to its own defeat, on the slope of the North Cheyenne Canyon, Colorado.

Photographs by Photo-Craft Shop

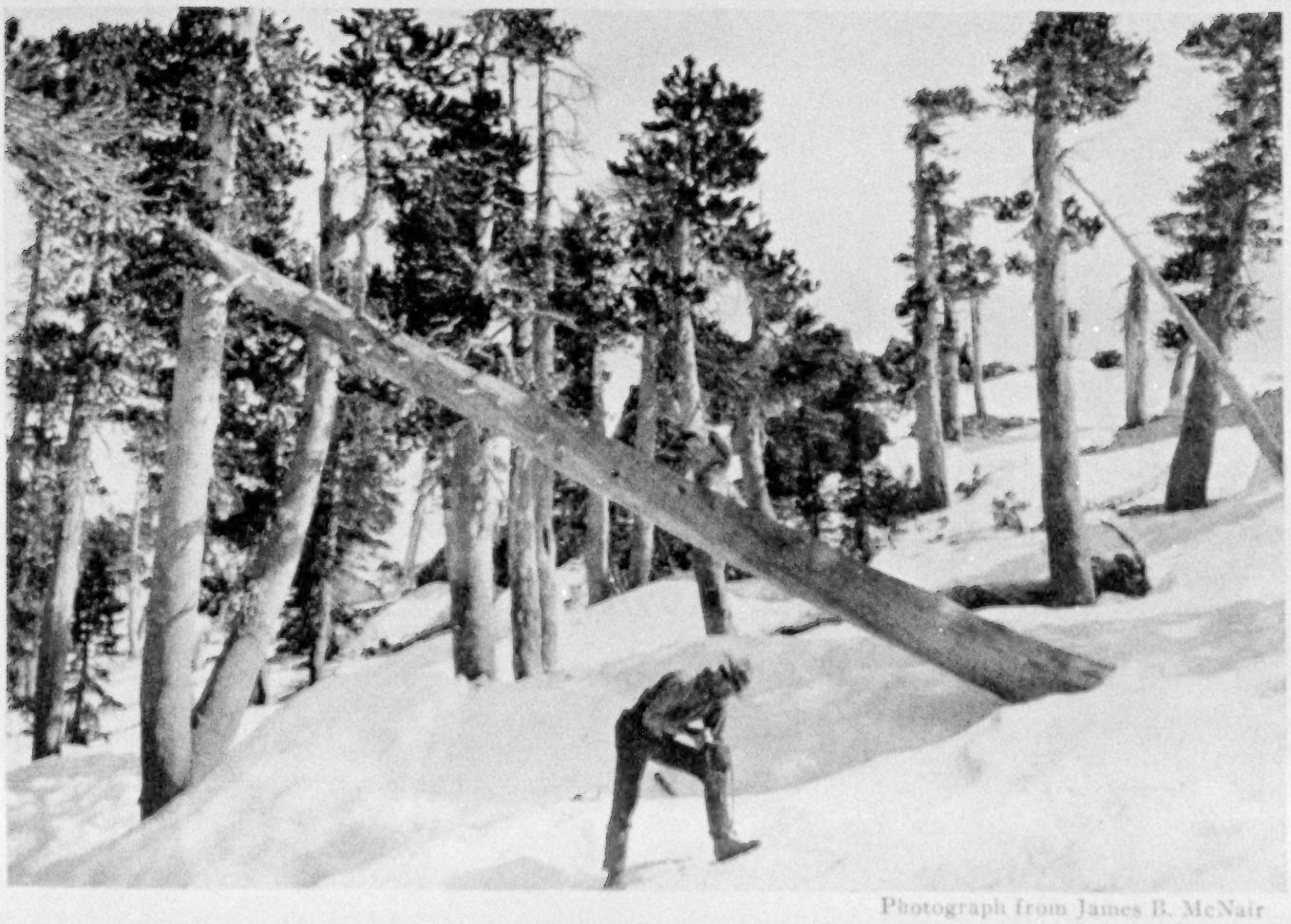
THE THIN GREEN LINE: VETERANS OF A HUNDRED BATTLES ABOVE THE CLOUDS

They bend to the blast, but no blow of elements can cause their stout hearts to quail in their unequal fight to hold the Mount Baldy timber-line.

Photograph by Photo-Craft Shop

A STATELY SENTINEL ON THE FIRING LINE

The scene of the ceaseless struggle is "The Summit," near Pike's Peak, Colorado.



Photograph from James B. McNair

NO GIANTS THESE, BUT STAUNCH AND VALIANT FIGHTERS

Lodge-pole pines near the summit of Mount San Antonio, southern California, endure the blows of battle with stoic calm.

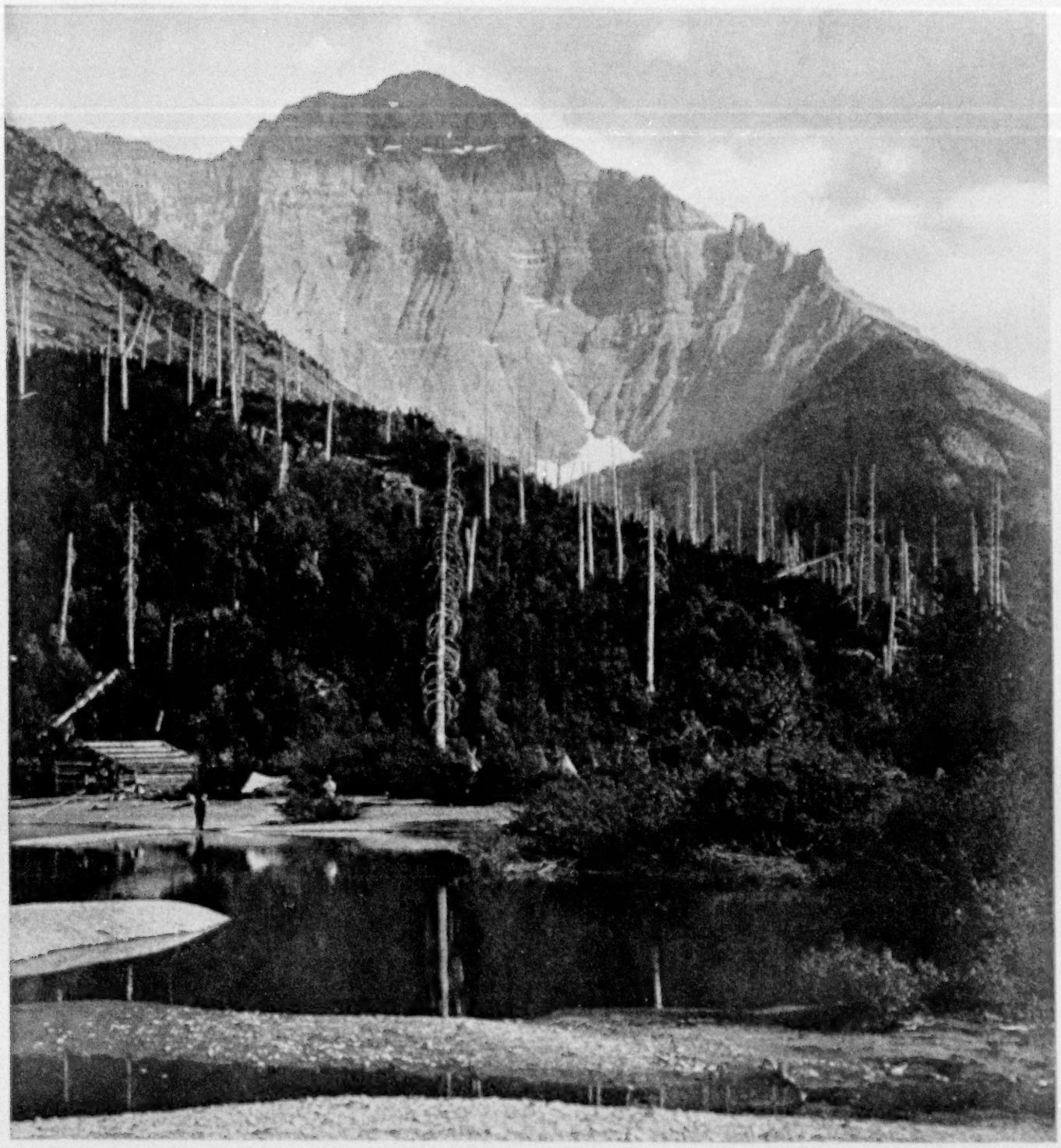
Photograph by Hugo Brehme

MOUNT ORIZABA, MEXICO, UP WHOSE SLOPES MARCH THE TREE HOSTS FROM THE TROPICS TO THE ETERNAL SNOWS

A hundred romances are concentrated in the story of the advance of the forest phalanxes from the base to the summit of this matchless peak.

Photograph by Vittorio Sella

CARRYING THE BATTLE INTO THE INHOSPITABLE HEIGHTS OF THE RUSSIAN CAUCASUS



Photograph by A. J. Baker

GHOSTS OF THOSE TREES WHICH FOUGHT THE GOOD FIGHT, BUT WERE CUT OFF IN THEIR PRIME: ON THE SLOPES OF MOUNT CLEVELAND, MONTANA

borrowed freely. Telling of the great forest areas that stretch along the Pacific Coast from California to Alaska, he relates how the trees arrange themselves with military precision, each species in strict accord with the laws of altitude and climate. Where low gaps in the Coast Range give free access to the western wind, the trees retreat toward the base of the mountains.

As one proceeds northward the conifers advance toward the coast, always seeking, whether climbing the mountain or approaching the sea, the conditions of terrain and climate best suited to their plan of campaign and style of attack. The tree that finds itself at home on the shores of Puget Sound, climbs up 6,000 feet into the Sierra in the latitude of middle California.

THE MILITARY HIGHWAYS FOLLOW THE HOLLOWS

The roads by which the trees advance to the timber-line usually follow the hollows that reach up toward the heights; for the howling winds that sweep over the unprotected ridges by which the

THE WIND HARP OF THE PINES ON FLATTOP, ROCKY MOUNTAIN NATIONAL PARK

This is a characteristic study of a wind-blown pine found at timber-line on the Flattop trail.

mountain is buttressed make them inhospitable lines of march.

Here, however, the Frost King turns loose his bombing squadrons, which drive down these mountain hollows with disastrous effect. Irresistible avalanches make massed assaults, crushing everything within their paths and gathering momentum as they go; they grind down every tree, often leaving their trunks to decay, half buried in the debris that the floods of rock and snow leave in their wake.

Yet, undeterred by the vengeance the foe has wrought on their elders, young trees spring up, take the places made vacant by the avalanche, and begin afresh a courageous but hopeless struggle for the possession of terrain claimed by the snow.

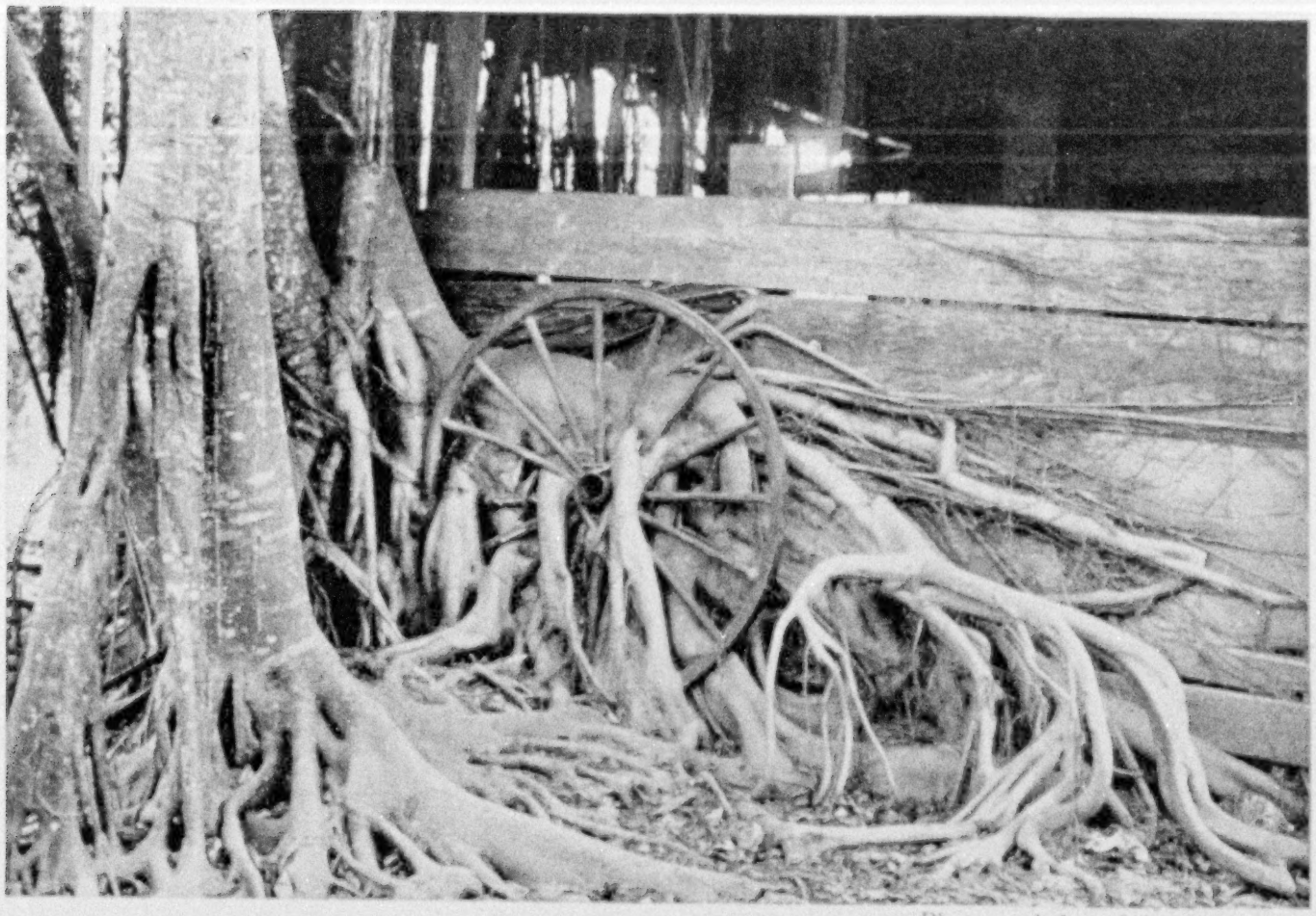
Conditions in the Rocky Mountain theater of war do not differ essentially from those obtaining in the Sierra, except that some types are missing from the tree armies here that are present in those of the Sierra — for instance, the Sequoia.

One finds that on the north side of Longs Peak the tree hosts have not been able to press the enemy as closely as on the south side. With the force of the wind somewhat broken and the support of the sun more pronounced, the forces trying to take the citadel of the mountain from the south are able to scale a thousand feet higher than those on the north side. Whenever they find a water-course they succeed in climbing higher than elsewhere.

On Mummy Mountain one finds at timber-line that the black spruce is holding the redoubts. Often the trunks of the trees are nearly two feet in thickness, while their height brings their topmost branches only to the shoulders of the war correspondents who chronicle their struggles.

WHERE MOUNTAIN FORCES ARE AIDED BY POLAR HOSTS

Many distinguished writers have visited the Selkirk theater of war in Canada and have given careful pen pictures of the struggle there. In height, the prevalence of glaciers, and the existence of per-



Photograph from John C. Gifford

A DEMONSTRATION OF EXPERT "SAPPING" IN ONE OF THE BASE CAMPS OF THE FOREST FORCES: CUTLER, FLORIDA

The tree must be a sapper and miner if it would withstand successfully the onslaughts of the enemy. This particular forest fighter will never be called upon to undergo the shock of snow and hail assault, but a wonderful example of nature's tactics is here shown. Through the spokes of a wagon wheel this rubber tree has sent its sinuous roots, grappling itself to earth as if it feared the irresistible attack of a hurricane.

petual snow-fields, the Selkirks resemble the Alps. In ascending beyond 5,000 feet, the balsams and the spruces—the dominant species of the sub-alpine forest—begin to break up into little groups, separated by shrubs. At 7,500 feet there are still small groups holding the first-line trenches. Frequently the center of one of these groups is a strong and sturdy spruce, the "non com" of the little force of small balsams gathered round it.

C. H. Shaw, another observer at the front, gives a striking picture of the result of the attacks of snow upon the trees at timber-line in the Selkirks. He says:

"In the forest near timber-line, the snow was absent only at the spots occupied by the groups of trees into which the forest was becoming resolved. No doubt less snow had accumulated there, and the trees themselves, being dark objects, probably hastened the melting of that which did accumulate; but the relation was none the less significant. Passing higher up, where the snow was heavier, the tree groups were more widely separated, and more sharply confined to spots where the local contour had prevented the snow from accumulating to great depths.

"Thus the forest was broken into scattered patches of trees, standing mostly on mounds and hillocks. The vicinity of each group was occupied by numerous small trees, and all except the most sheltered bore battle scars proclaiming their struggle with the snow. Only their tops were in a healthy condition."

"STANDING IN SNOW UP TO THEIR NECKS"

In other words, standing in snow up to their necks during the cold winter months, it seems that the trees contracted a sort of "trench foot" trouble of their own. Under such circumstances all sorts of conditions battled on the side of the

Photograph by Robinson-Matlack Company

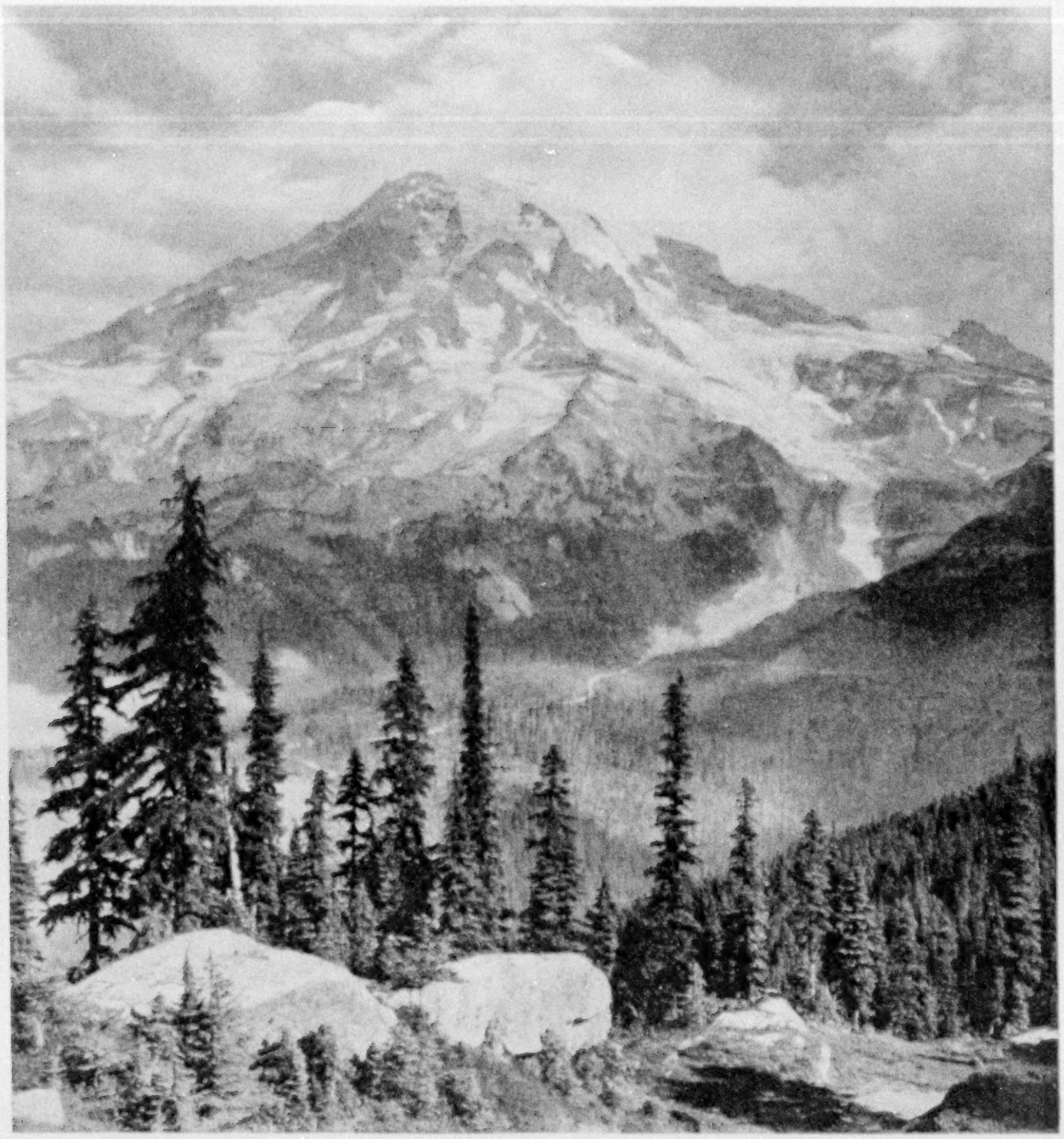
THE FIGHT AT SEA-LEVEL

Along Florida's palm-fringed coast, where the trees must defend themselves against the ever-blowing trade winds, now and then backed by an angry sea.

forces of Frost. The buried branches were smothered as effectually as though there had been a gas attack; unable to breathe, they could not throw off the fungi *mycelia*, the trench rats of their battle line.

Some conditions obtain on the Andean battle front that do not apply elsewhere. In the tropical Andes one finds the cinchona trees, from which the quinine of commerce is derived. From their southern range to their northern limit these trees cover nearly thirty degrees of latitude, or approximately eighteen hundred miles. They never venture lower than 2,500 feet above sea-level, though they frequently climb as high as 9,000 feet; but at the latter altitude they drop out, leaving to elfin trees and shrub wood the march to the higher reaches. On the broad, desolate steppes of the alpine belt there often appear isolated, gnarled dwarf trees of the species *Polylepsis lanuginosa*.

In none of the other theaters of war where the trees and the frost meet in



© Asahel Curtis

TIMBER OUTPOSTS ON GUARD IN TATOOSH PARK

In the background rises Mount Rainier, the pride of the State of Washington, impregnable to the attacks of the tree hosts.

death grapple on the eery slopes of high mountains do the trees have to make their last stand so far from the summits that are their objectives as in the Himalayan war zone.

COMMUNIQUÉS FROM THE HIMALAYA BATTLE LINE

There are many sectors and salients in the timber-line of the Himalayas, and it will be interesting to epitomize some of the communiqués that come from them. Mr. and Mrs. Workman, in their "Two Summers in the Ice-wilds of Eastern Karakorum" and their "Ice-bound Heights of the Mustagh," give some interesting pictures of the marching hosts that carry the warfare of the trees into the clouds. At Kapaln a rajah took them into his garden and showed them a walnut tree only two feet high that already was in bearing. That year it had produced a crop of three walnuts.

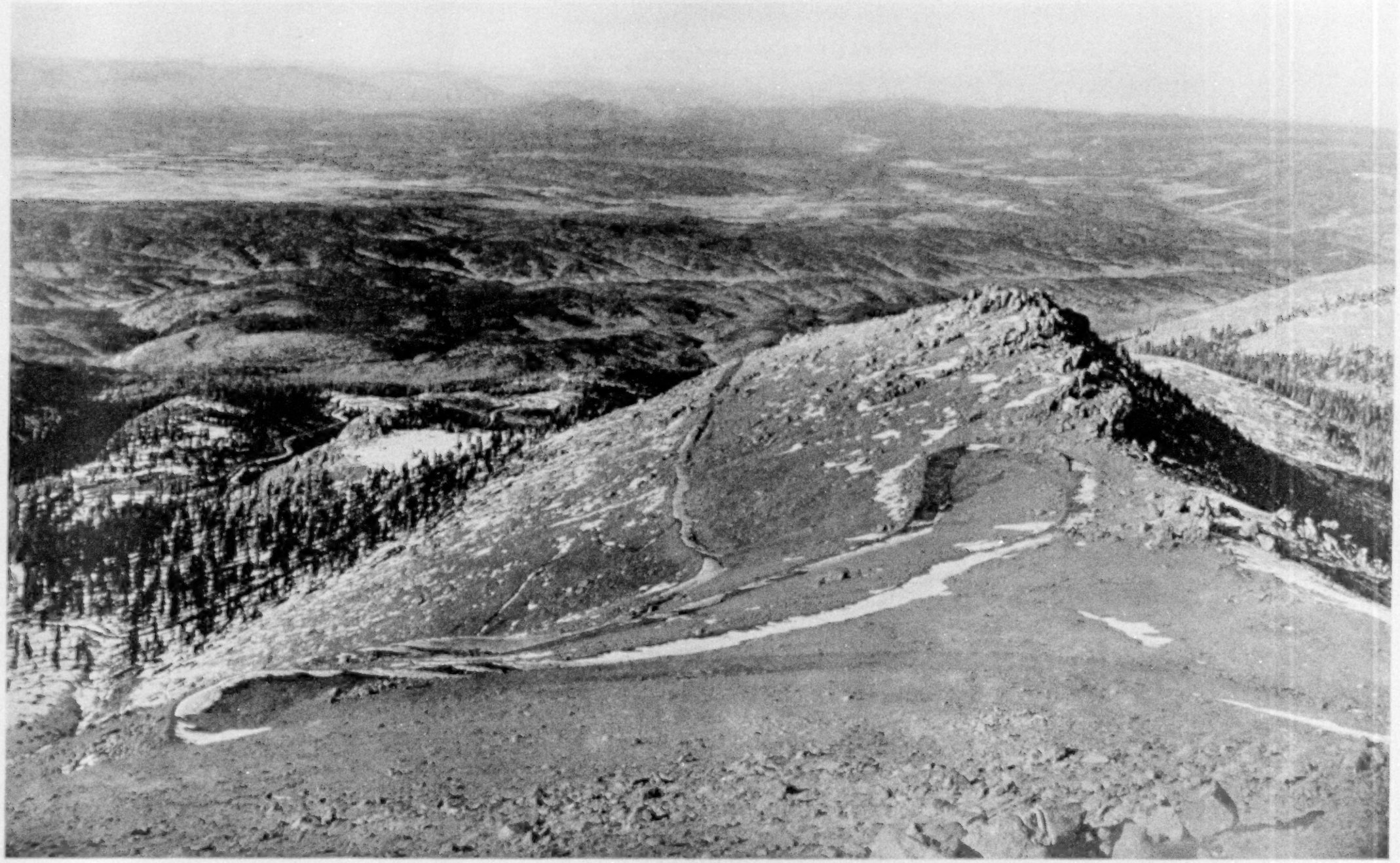
At another place they found evergreen trees, mostly cedars, boldly clinging to positions in niches in the vertical or

Photograph by Vittorio Sella

ENCOUNTERING A GAS ATTACK

The Weather Gods from the snow-clad summit have sent down chilling currents which cause an obscuring blanket of clouds to spread over this unnumbered host of trees encamped on west Uganda heights.

XUM



AN ENVELOPING ATTACK OF THE FOREST FIGHTERS: FROM RIGHT AND LEFT THE TREES ADVANCE IN THEIR EFFORT TO GAIN A FOOTHOLD ON THE HEIGHTS

A scene along the Pike's Peak Automobile Highway, which ascends the rock-walled sides of the mountain above timber-line in ten immense swings. Dynamite was used to blast the highway in the unyielding rock, where the tree forces were finally defeated.

nearly vertical rock faces of mountains where there seemed to be no soil and where it appeared impossible for water to remain.

And yet their morale must have been at high-water mark, for their luxuriance would have done credit to that of trees in the most favored positions far down the mountains. And this was at an elevation of 13,000 feet. There were also deciduous trees, resembling mulberries, clinging to similar positions with a vigor and vim that made them the world's most famous alpine warriors. Even the willows continued in ranks up to 11,500 feet, and at 14,400 the last struggling bush proclaimed that it was holding the most advanced outpost in the whole line.

THE TRUCELESS WAR GOES ON IN JAVA, THE ALPS, AND AFRICA

One might find thrilling stories of the truceless war on the timber-line in many another isolated area. In the mountains of Java, on the slopes of the Ruwenzori of Africa, in the Alps of Europe, in the mountains of New Zealand, in a hundred areas, the age-long struggle goes on. Every species of tree that we know pushes just as far skyward and poleward as it can live. Each species finds its place in the general scheme, all maintaining a united front and a solid support against whose morale no efforts of the common enemy avails.

It does appear true, however, that during generations past the forces of Frost have won some little ground from those of the trees. From many regions there come reports of the dead bodies of trees that held positions in advance of any that are now living. How this ground was taken no one may ever know.

There are other timber-lines than the one which Frost draws saying to the trees, "They shall not pass!" Just as the Incas drew back into Machu Picchu—into an isolation where no enemy might pursue—so, many species of trees, weary of the fierce competition of the open forests, seek refuge in tracts where competitors cannot come. Some of them invade the desert, preferring its burning thirst to the strenuous struggle of the thick forest; others find their place in the grassy plains, where most trees are unable to gain a foothold.

MAN PROVES AN ALLY OF FROST

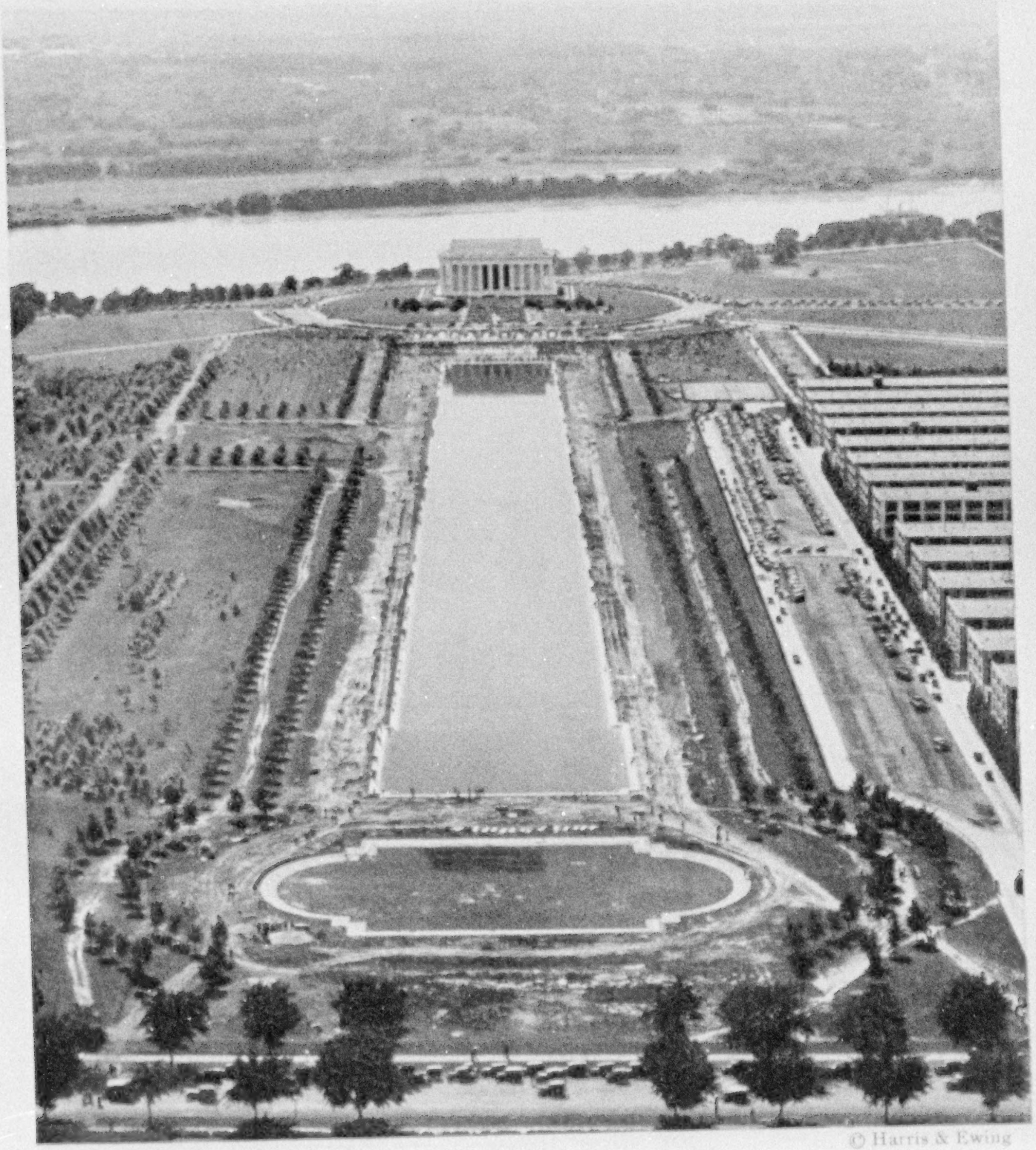
Sometimes man proves an ally of the forces that try to limit the boundaries for the trees. The so-called Alpine pastures of the Cévennes, in France, are not, indeed, above the timber-line at all. Rather, they are merely grass-covered clearings, where the trees were destroyed so long ago that the memories of the natives run not to the contrary.

In many parts of the world woodland and grassland oppose one another as rigorously as two hostile nations of equal strength, locked in a stalemate. The trees do their best to expand their kingdom at the expense of the grass, but the grass holds its front-line trenches in a way that is wonderful to behold. Whoever has seen the tree-line on the prairies of North America, the pampas of South America, the steppes of Asia, the veldt of Africa, or the plains of Australia must be impressed with the hardihood of the grassy Davids that lay low the tree kingdom's Goliaths.

No one can follow the armies of the trees around the world without gathering a keen impression of them as soldiers. So well are the different classes of troops trained that there are forces for every front. The way they meet the fighting conditions of the sectors they are severally called upon to hold—whether in cold Siberia or in the tropics, whether on polar plain or mountain summit, whether on the edge of the desert or the rim of the world—shows an adaptability to environment and circumstance that makes no mean contrast with the applauded gifts of man himself to carry war where he will.

INDEX FOR JANUARY-JUNE, 1922, VOLUME READY

Index for Volume XLI (January-June, 1922) will be mailed to members upon request.



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THE LINCOLN MEMORIAL AND ITS REFLECTING POOL, SEEN FROM THE TOP OF THE WASHINGTON MONUMENT

"Here on the banks of the Potomac, the boundary between the two sections, whose conflict made the burden, passion, and triumph of his life, it is peculiarly appropriate that it should stand. Visible in its distant beauty from the Capitol, whose great dome typifies the Union which he saved, seen in all its grandeur from Arlington, where lie the Nation's honored dead who fell in the conflict, Union and Confederate alike, it marks the restoration of the brotherly love of the two sections in this memorial of one who is as dear to the hearts of the South as to those of the North" (see page 204).

Photograph by U. S. Army Air Service

THE LINCOLN MEMORIAL DEDICATION EXERCISES, MAY 30, 1922

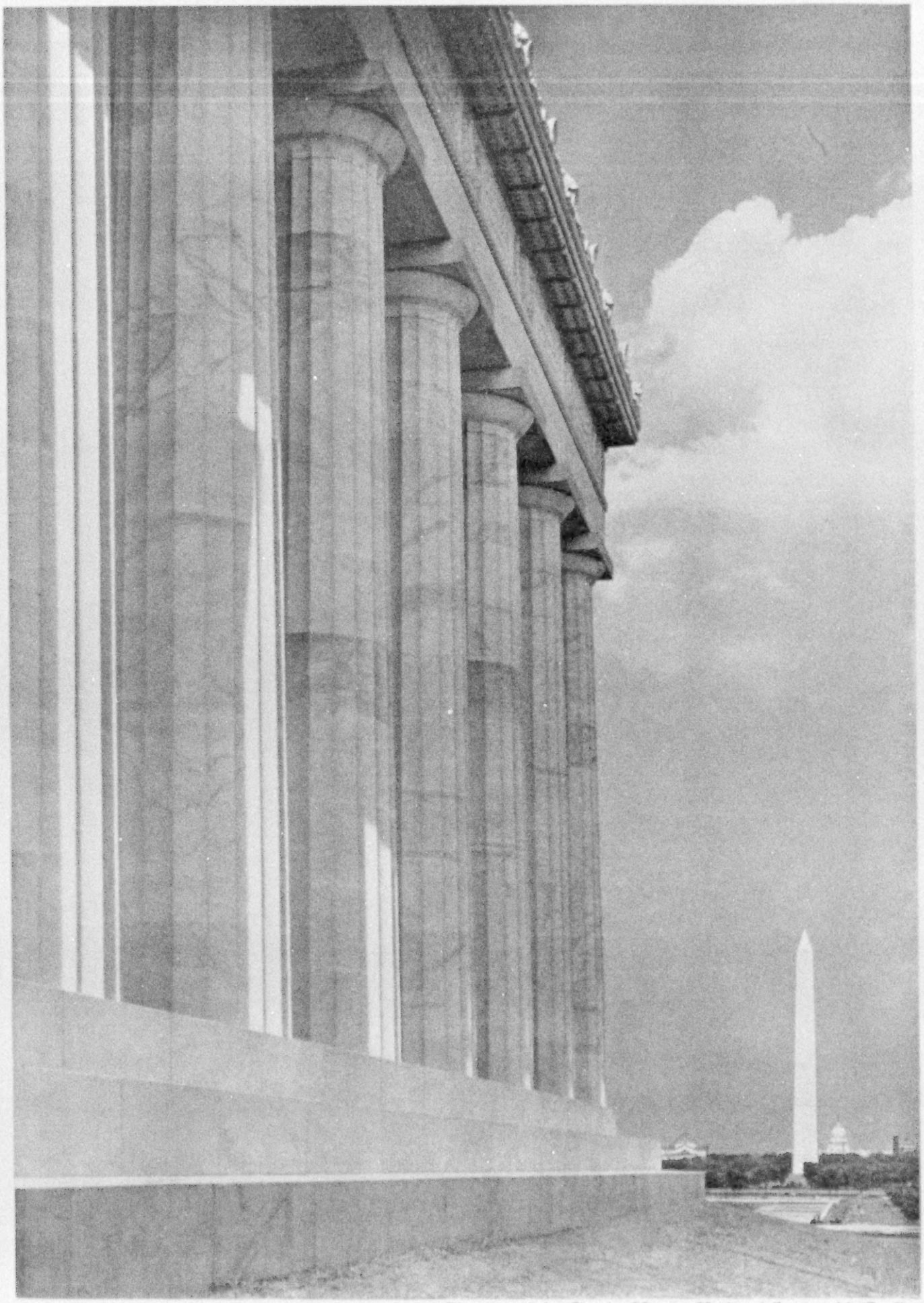
"For ten years the structure has been rising. From the solid rock beneath the level of the Potomac, 50 feet below the original grade, it reaches a total of 122 feet above that grade. The platform at its base is 204 feet long and 134 feet wide. The proportions of the Memorial are so fine that its great mass and height and length and breadth are suppressed in its unity."

UM

Photograph by Maynard Owen Williams, National Geographic Staff

THE LINCOLN MEMORIAL IN WINTER

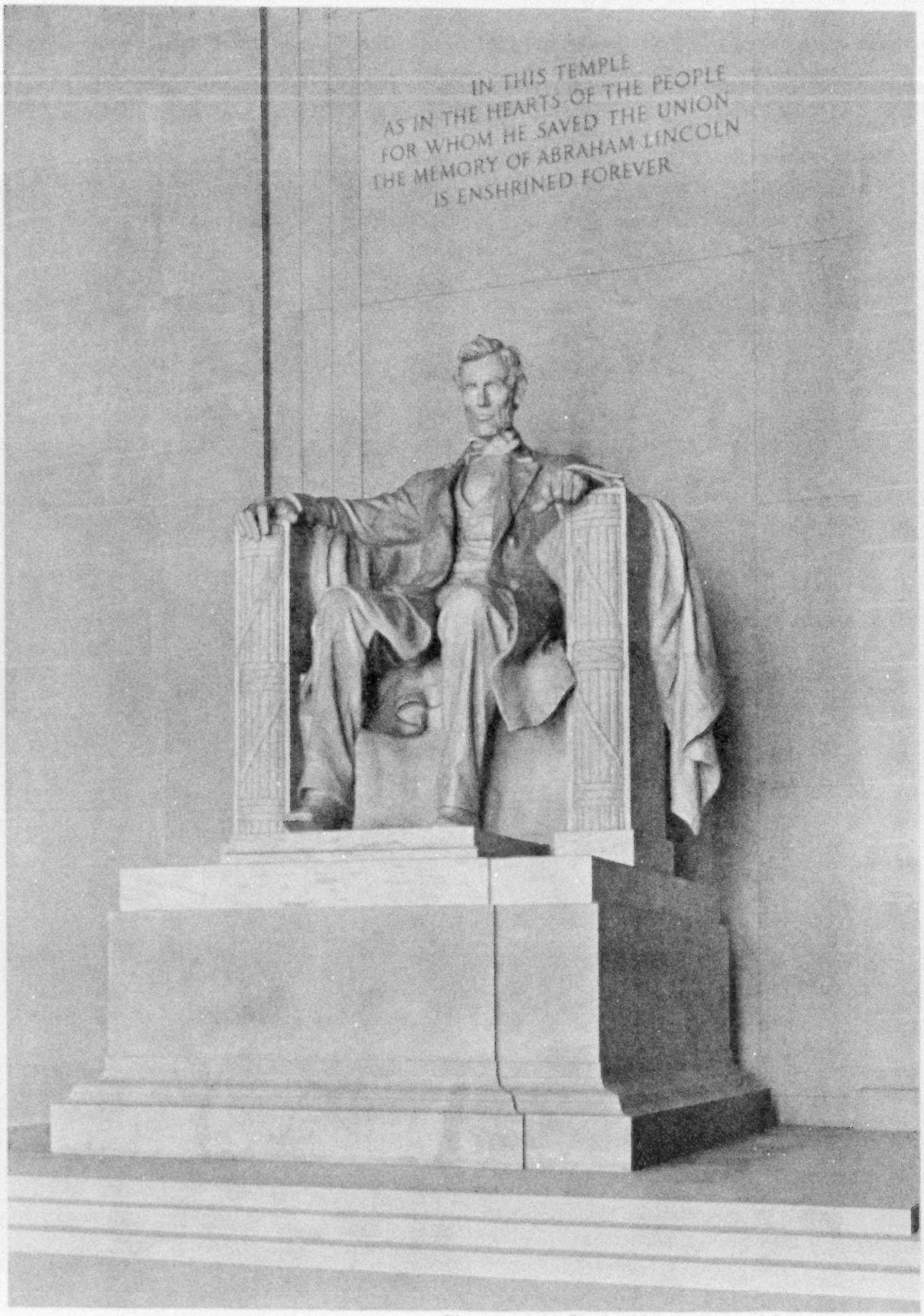
"It is well that half a century should pass before his people's national tribute to him takes form in marble, that it should wait until a generation instinct with the growing and deepening perception of the real Lincoln has had time to develop an art adequate to the expression of his greatness."



Photograph by Charles Martin, National Geographic Staff

THE LINCOLN MEMORIAL, WITH THE WASHINGTON MONUMENT, AND THE CAPITOL AND NATIONAL MUSEUM DOMES IN THE DISTANCE

"The outside columns are the simple Doric, the inside columns the simple Ionic. The marble of the structure is from the Colorado Yule mine, remarkable for its texture and the purity of its white, and for the size of the drums which make the columns noteworthy in the architecture of the world."



Photograph by Charles Martin, National Geographic Staff

"HERE IS AN ALTAR UPON WHICH THE SACRIFICE WAS MADE IN THE CAUSE OF LIBERTY"

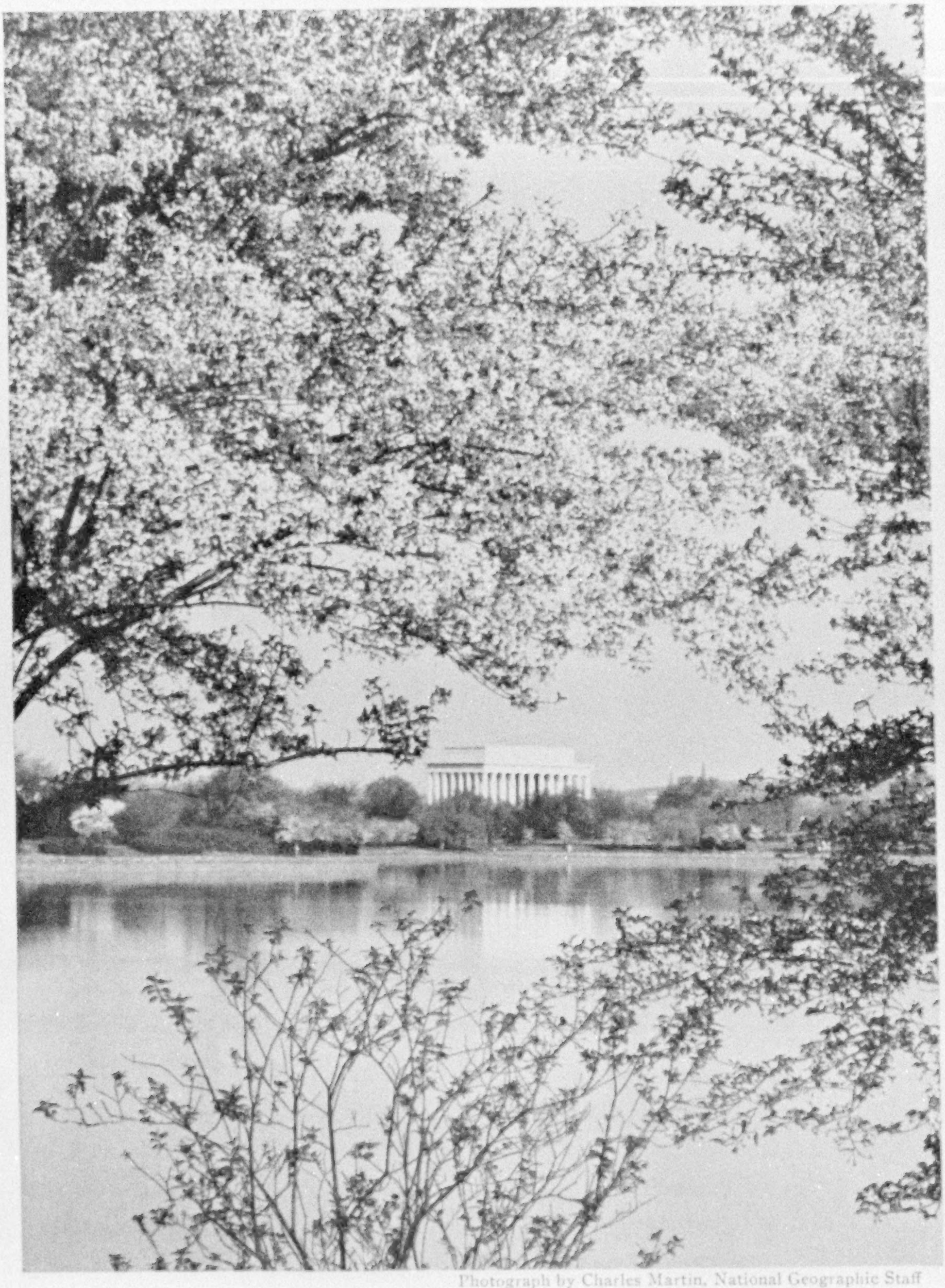
"The statue is the work of Daniel Chester French, one of our greatest sculptors. It fills the memorial hall with an overwhelming sense of Lincoln's presence, while the mural decorations of another great American artist, Jules Guérin, with their all-embracing allegory, crown the whole sacred place."

Photograph by Charles Martin, National Geographic Staff

THE INTERIOR OF THE MEMORIAL AND "THE COLOSSAL FIGURE OF THE BELOVED IN GEORGIA MARBLE"

© Ernest L. Crandall

THE LINCOLN MEMORIAL, AT THE END OF THE AXIS OF THE MALL, REFLECTED IN THE WATERS OF THE TIDAL BASIN



Photograph by Charles Martin, National Geographic Staff

THE LINCOLN MEMORIAL IN CHERRY-BLOSSOM SEASON

"'Lincoln, of all Americans next to Washington, deserves this place of honor. He was of the immortals.'" [Text, pages 197-204, extracted from the address of the Honorable William Howard Taft, Chief Justice of the United States and Chairman of the Lincoln Memorial Commission, in presenting the Memorial to the President of the United States, May 30, 1922.]

THE ARCTIC AS AN AIR ROUTE OF THE FUTURE

By Vilhjalmur Stefansson

THE map of the Northern Hemisphere shows that the Arctic Ocean is a huge Mediterranean. It lies between the continents somewhat as the Mediterranean lies between Europe and Africa. In the past it has been an impassable Mediterranean. In the near future it will not only become passable, but will become a favorite air route between the continents, at least at certain seasons—safer, more comfortable, and consisting of much shorter "hops" than any other air route that lies across the oceans that separate the present-day centers of population.

We shall "soon" be booking our passage from New York to Liverpool, or London to Tokyo, by dirigible or plane in as matter-of-course a way as we now book our passage by steamer. As to how far in the future that period lies, our estimates differ according to our temperaments.

When Tennyson spoke of the "aërial navies grappling in the central blue," he was a poet and a prophet, for no inventions were then available the mere development of which could make such dreams a reality. When we now speak of the coming transoceanic air commerce, we are no longer prophets, for we are merely considering the daily and yearly increase in efficiency of inventions which we now have.

The thought is, however, in the back of our minds that, in addition to such increasing perfection of known instruments, we shall eventually have also entirely new devices that are at present as much in the future as were even the crudest approaches to an aërial navy in the time of Tennyson.

FLIGHT BY WAY OF NORTH CAPE

Although our estimates of when transoceanic air service shall be no longer a novelty differ according to our temperaments, they vary only between years in the vision of the optimist and decades in the gloomier view of the pessimist.

But whenever the time of regular transoceanic air commerce arrives, there will be in England not only those who desire to book passage by air for New York, but also others who have pressing affairs awaiting them in Tokyo.

Then will arise the choice of routes, and in the summer season at least it will be thought an absurdity for those in a hurry to go from England to Japan by way of either New York or Montreal. They will fly by way of the North Cape of Norway and Novaya Zemlya.

Since the days of Magellan it has been a commonplace that you can go east by sailing west. It is about to become an equal commonplace that you can go east by flying north.

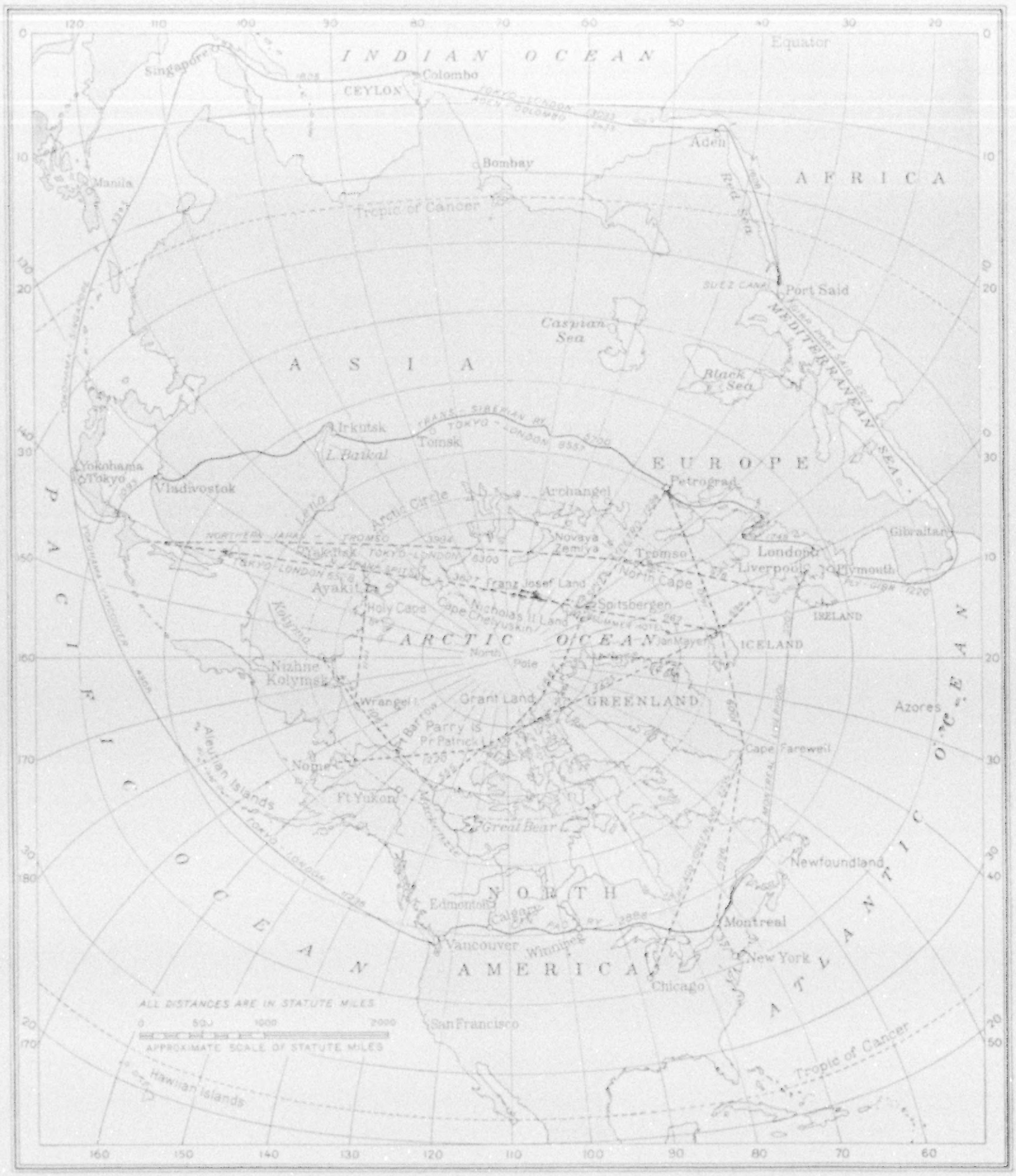
The days of Columbus and Magellan were in Europe days of intellectual renaissance. People had not generally known even that the world was round; but when that novel view once was presented, they drew from it all its proper conclusions. One of the most fruitful of these was that you could reach China not only by sailing west, but also by sailing north, and it was soon realized that the shortest route from Europe to China was a northerly one. In navigation we call this the principle of great-circle sailing.

NORTHWEST PASSAGE NOT PRACTICAL FOR SHIPS

But in certain places lands barred the way of the navigator, and everywhere the "frozen ocean" hindered the ships.

There was failure after failure of great expeditions, until finally it was agreed that although a northwest passage was possible, it was not a "practical" route, and that neither time nor expense could be saved by using it.

Before the days of the Suez and the Panama canals, it was cheaper and safer to sail around the Horn or the Cape of Good Hope than to navigate the northwest passage around America or the northeast passage between the Pole and Asia. Although the difficulty of making



Drawn by A. H. Bumstead and James M. Darley

A SKETCH MAP OF THE NORTHERN HEMISPHERE SHOWING PROPOSED ROUTES OF AIRCRAFT OVER THE ARCTIC ZONE

For many centuries, explorers, sailing in the interest of commerce, sought Northwest and Northeast Passages to the Far East. After many failures which proved costly in lives and ships, both arctic routes were discovered, but the perils of the tortuous passages through icy seas far outweighed any advantage of shorter distance. Now, new northern passages are contemplated — passages through the air from northern North America to northern Europe and Asia; the Old and New Worlds are only a few "hops" apart, as the airplane flies. The northern continents, separated by the Arctic, seem, in the vision of the airman, not much farther apart than are Africa and Europe, separated by the Mediterranean, or North and South America, separated by the Caribbean.

these northerly voyages is in the public mind grossly exaggerated, the fact remains that for surface craft these really are not "practical" routes from the commercial point of view.

Although realizing the applicability of aircraft to commerce and warfare in our own latitudes, we have not adequately realized their significance in solving, after four hundred years, the problem of the northwest passage and giving us at last a short route from Europe to the Far East. Whether it be in five years or in fifty that aërial transoceanic commerce in tropical and temperate latitudes becomes a commonplace, transpolar commerce will then be equally common for at least the summer months.

At present, passenger liners in crossing the Atlantic have winter routes that differ sometimes by several hundred miles from their summer routes. Aircraft will doubtless be even more free in their variations of route according to season. Indeed, it is probable that the weather bureaus, which will by then have multiplied at least by ten their present great importance to commerce, will publish daily or several times a day maps of the air routes, the information of which will be conveyed by wireless messages to the commanders of aircraft, enabling them to vary from hour to hour the courses they steer, as to latitude and longitude and altitude.

THE AIRMAN MAY CHANGE HIS WIND

With the sailor on the ocean it is, outside of the trade-wind belt, almost a matter of accident whether the winds blow him fair or foul, but in the air there may be a fair wind a certain distance up and a head wind either higher or lower.

The airman may change his wind from fair to foul by raising or lowering his craft. It is, therefore, impossible to say now just where the transpolar air routes will lie, and indeed they will probably always vary from day to day. But, wherever they lie, they are sure to be advantageous commercially and popular with passengers, at least during the season corresponding to that in which the tourist of today sails to Alaska or Norway or Spitzbergen to see the midnight sun.

For the coming popularity of the transpolar air routes from North Europe to eastern Asia and from North America to northern Asia there are four main reasons. We shall consider these in their relation to the needs of a passenger who wants to go from England to Japan.

The first advantage of the polar route is its shortness. The most practical route of the recent past has led from England by way of ocean steamers to Montreal, the Canadian railways to Vancouver, and then by the northerly steamer route along the Aleutian Islands to Japan. This route is approximately 11,000 miles from Liverpool to Yokohama. But the distance from a railway terminus at the north of Great Britain to the north end of Japan proper, where railway travel could be again resumed, is by air route only 4,960 miles, or about half the present regular route between the two countries.

IMMENSE SAVING OF DISTANCE

To a man in a hurry, whether for personal transportation or the transportation of urgent dispatches, a saving of half the distance, meaning also saving of half the time, will in some cases be extremely important. But the route has other advantages, which in other cases may be even more attractive.

Economy in hydrogen is the second important advantage of the polar route. It is said that helium is for dirigibles a preferable gas, not only because it will not explode, but also because it does not expand rapidly with heat. However, helium is at present exceedingly rare, so rare that even were the costliness of it no consideration, we would still be at a loss to see how any considerable number of dirigibles could be operated with that gas.

Paint the bag silver or any color you will, the amount of heat locally generated by the sun's rays striking the dirigible is great. The hydrogen expands, and there is no practical way as yet conceived which can avoid the loss of gas.

You can avoid a bursting of the bag only by allowing the gas to escape. This is the chief factor which limits the length of balloon voyages. A certain amount of gas is lost each day and reciprocally a certain amount of ballast has to be thrown out each night to prevent the balloon from settling to earth.

But the alternation of day and night, which seems a necessary evil to those habituated to southern latitudes, is not a

Photograph by Captain C. T. Pedersen

A SIBERIAN SKIN CANOE WITH COVERING OF SPLIT WALRUS HIDES

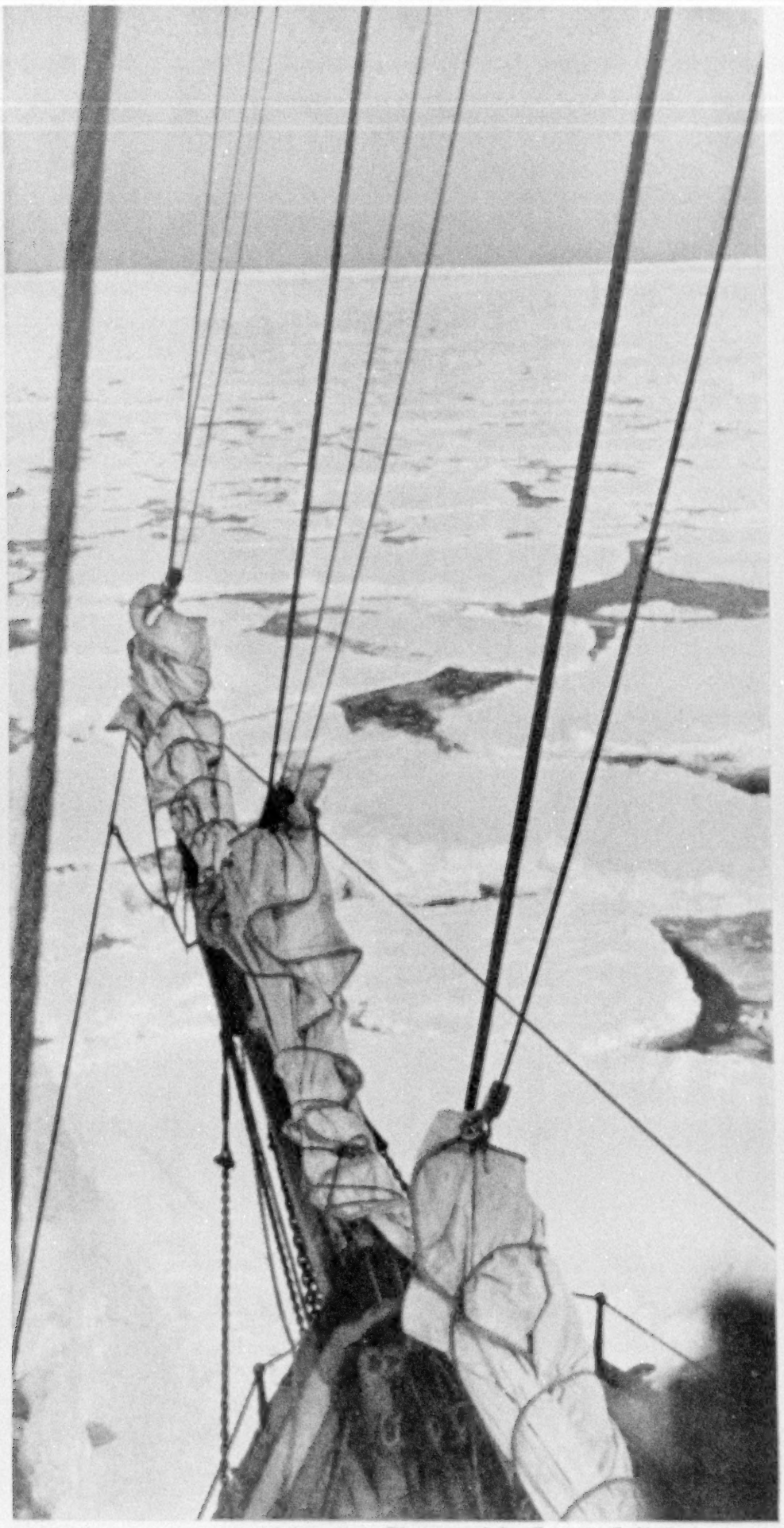
"Of what practical benefit is Arctic exploration?" is a question often asked by the utilitarian, unimpressed by scientific research and investigation. The adaptation of the explorer's knowledge of the Polar regions to the needs of the passenger-carrying Arctic airman will be one answer to this query.

factor in the polar regions, whether in midwinter, when it is always dark, or in midsummer, when it is always light. We shall, for the present, consider only summer journeys.

The speed of the dirigible that has already crossed the Atlantic was great enough so that, had it started north from Scotland with a full supply of hydrogen just after a spring sunrise, it could have reached the area of perpetual daylight, near Iceland, in fifteen or twenty hours.

This means that such a dirigible would not be overtaken by darkness at all in the beginning of its trip and would meet its first night only after crossing the polar area and penetrating well into Asia. On the major portion of the voyage from England to Japan, there would, accordingly, be no great expansion or contraction of the hydrogen, no considerable loss of buoyancy or necessity for throwing out ballast, giving not only an increased cruising radius to the dirigible, but also an increased freight-carrying capacity.

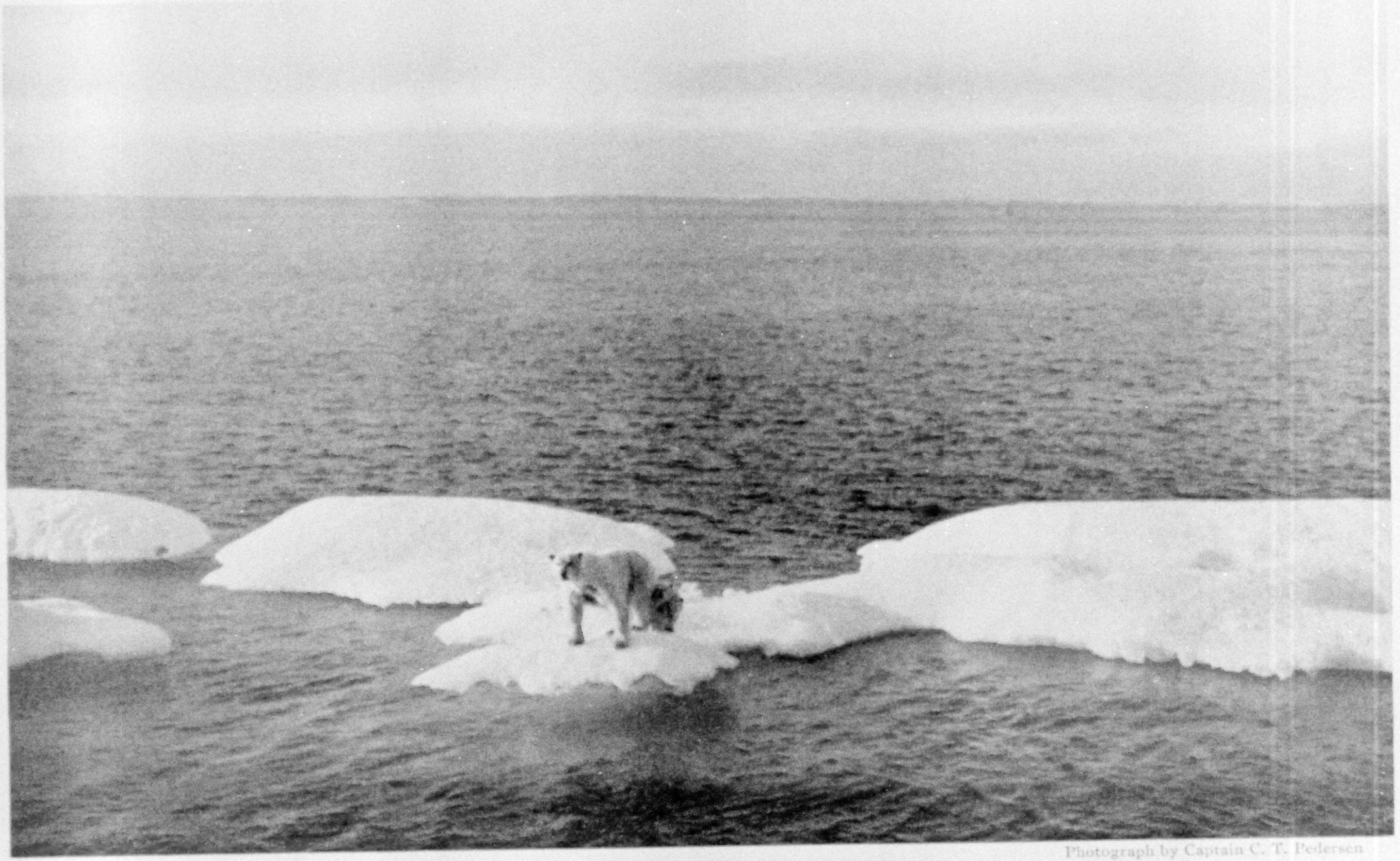
In air voyages no less than sea voyages, things will doubtless occasionally go wrong. This brings us to the third great advantage of the northern route.



Photograph by Captain C. T. Pedersen

FORCING A WAY THROUGH THE SMALL FLAT ICE IN THE BERING SEA IN EARLY SPRING

The presence of relatively stable ice-floes in the polar ocean would be an advantage to aircraft in case of forced landing. Cakes of ice would serve as life-rafts (see text, page 211).



Photograph by Captain C. T. Pedersen

AN ARCTIC MOTHER AND HER TWINS

This polar bear was killed after it took to the water, and the two cubs were lassoed and brought to San Francisco.

If you get into trouble, you would rather that it happened in daylight than in darkness.

In stories of sea tragedies, the stoppage of the engines, the failure of the light plants, and the plunging of the whole ship into inky darkness are often the most terrifying features. Just when a crisis brings the need of swift and pertinent action, every effort is thwarted because no man can see what to do or what others are doing. Under the perpetual sun of the polar summer, we shall always be free from at least this attribute of southern tragedy.

ICE-FLOES AS LIFE-RAFTS

On the polar route, although the surface of the sea may not be more than half covered by substantial cakes of ice, there would be a reasonable certainty of landing on one of them. Were there a forced landing in open water, it would presumably not be more than a few miles from the nearest ice-floe, which could be reached by such life-rafts or other devices as a dirigible would naturally carry on a transatlantic voyage in southern latitudes. Thus, the presence of stable ice-floes in the polar ocean is the fourth great advantage of this route.

The temperature on the ice-floes in summer is usually warm enough for comfort, when one is dressed in spring or fall (medium) clothing; occasionally it is uncomfortably warm. This latter fact will not seem at all surprising to mountaineers who have suffered from the summer sun on the slopes of snow-clad mountains.

It may be said that it would not be any fun to be forced to land on an ice cake; but it would be a great deal more fun than having to land among tumbling and breaking seas in the mid-Atlantic.

One effect of scattered floes is that even in a gale there are no heavy seas. Indeed, if the ice is abundant, no swell is noticeable in the heaviest gale, and the waves on the patches of open water are only such as one may find on a pond or a small lake.

If S. O. S. calls containing, as they always do, position as to latitude and longitude are sent out while the dirigible or plane is descending to the ice or immediately after the landing, the party would have days or weeks, and even months, for opportunities of rescue.

Some of the enthusiastic advocates of air travel say that we shall eventually have in mid-Atlantic huge rafts — floating islands, in effect—that will be rescue stations for aircraft in distress. While that device may not be impractical, it will at least be difficult and expensive.

On the polar route, Nature has already provided a sprinkling of rafts far greater in number and far more stable than any such artificial rafts can ever be.

If not a fifth great advantage, at least a contributory merit of the polar route will be "The Midnight Sun" and kindred marvels, which can be exploited from the tourist point of view by the air liners of the future no less than they are by the tourist boats of today.

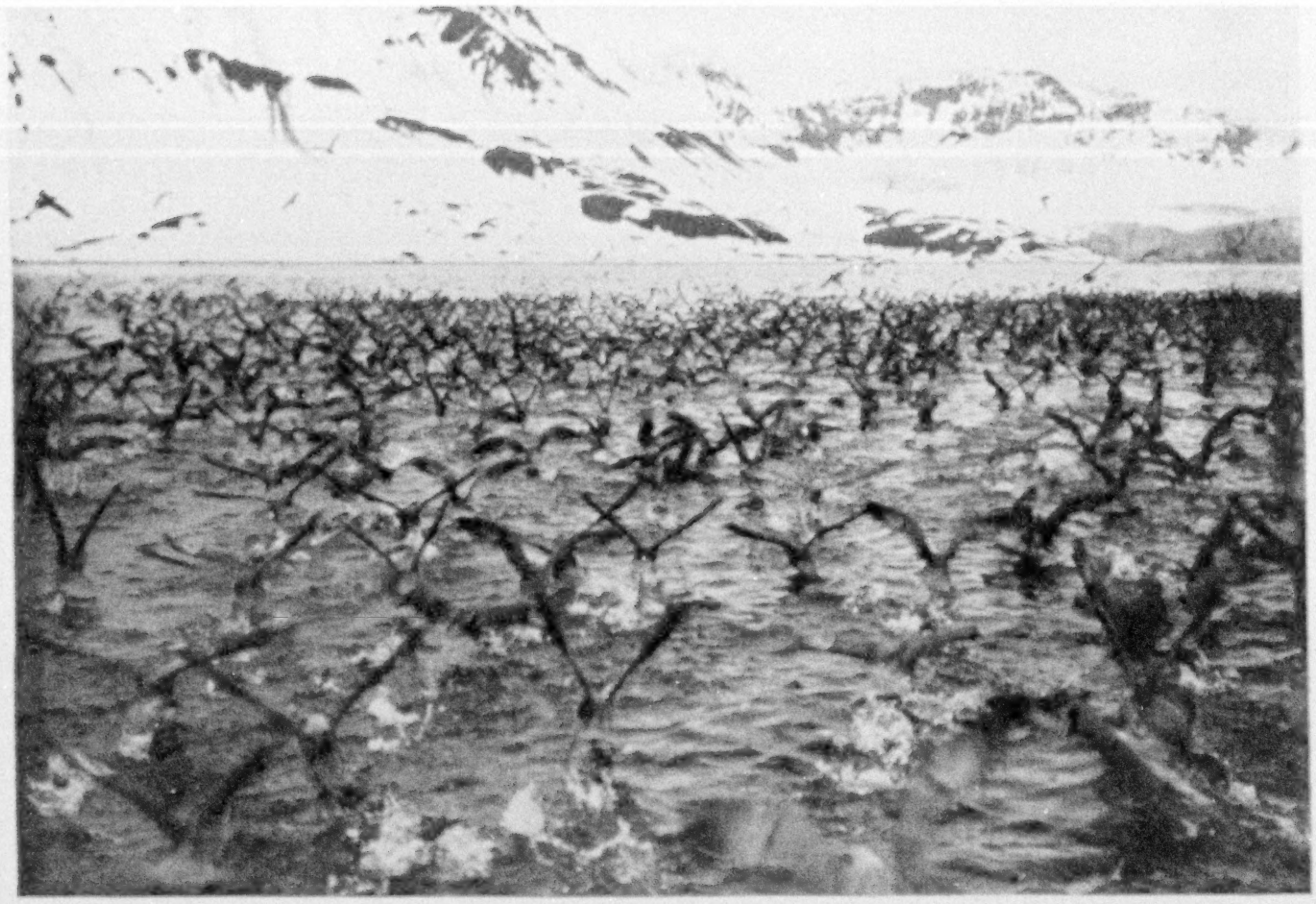
The transpolar route will become more important decade by decade. In Siberia we have as yet only one great trunk railway. It does, however, tap and make accessible many of the mighty rivers that flow north, and there are great steamers on these rivers that make the Arctic locally accessible.

The Trans-Siberian Railway runs in large part through the wheat belt of Asia, and the potential cereal belt extends far north of it. We shall, accordingly, have eventually the development of other great east and west railways and of many spurs running north and south. Tomsk, Yakutsk, Irkutsk, and the rest of the cities we have heard of, and many of which we have never heard, will be growing into Chicagos and Winnipegs and Calgarys.

CENTERS OF POPULATION WILL MOVE NORTHWARD

The centers of civilized population in Siberia and in Canada alike will be continually moving north, and there will be more and more occasion for the use of the polar route.

To people little acquainted with the Arctic, as most of us are, and misinformed, as nearly all of us are, there appear to be many arguments against the polar route. Few of these rest on any reality. Indeed, where we imagine positive difficulties, there may be positive advantages. Take, for instance, the matter of summer temperature.



Photograph by Oscar Halldin

SEA-GULLS, GREEN BAY, SPITZBERGEN

The birds took flight when the photographer sneezed.

We have all of us learned in school that, per square mile per hour, there is more heat received from the sun at the earth's Equator than anywhere else; but in the minds of most of us this truth is only a half-truth, and therefore the most dangerous sort of error, for we have commonly failed to grasp its interpretative corollary, that while each hour of sunlight brings most heat to the Equator, the hours of sunlight per day in summer increase in number as we go north.

WHEN THE ARCTIC GETS MORE HEAT THAN THE EQUATOR

This would give a perfect balance if the sunlight lengthened proportionally as the heat per hour lessened. That is not the case. As you go north, the length of day in midsummer increases more rapidly than the amount of heat per hour decreases; so that, although the heat per hour received at Winnipeg is less than it is in New Orleans, the amount of heat received per day is greater. That is one reason why Winnipeg is frequently hotter than New Orleans in July.

For something like five weeks every summer more heat per day is received from the sun on a square mile in the Arctic than at the Equator. If the North Pole were located on an extensive low land, remote from high mountains or any large bodies of water, it would be about as hot as the Equator on the Fourth of July. There is, however, at the Pole and in many places in the remote north a local refrigeration that tempers what otherwise would be unbearable heat. The winters are long, and under certain conditions a great deal of "cold" may be stored up.

In the polar basin we have an ocean thousands of miles across and thousands of feet deep, and all this water during the long winter is chilled to the vicinity of 30° Fahrenheit above zero.

There is also a certain amount of ice floating around on the surface. We have, therefore, a vast store of "cold" to neutralize the terrific downpour of the summer sun's heat, and it is probable that the air ten feet above the middle of the polar ocean is seldom warmer, even in July, than 50° or 55° Fahrenheit above zero. Higher up it would be somewhat warmer.

This means that conditions of flying, so

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SPORT IN THE ARCTIC; ROPING A POLAR BEAR FROM THE SIDE OF A BOAT

far as temperature is concerned, would be about the same over the polar ocean in July as they would be in France or England in late winter or early spring.

Greenland is peculiar among the polar lands in that its great altitude enables it to store up a large amount of "cold." In a few other northerly islands there are glaciers of moderate size (Franz Josef Island, Spitzbergen, North Devon) and glaciers of intermediate size (as in Ellesmere Island and Heiberg Island), but there are vast areas of polar lowlands where the little snow that falls in winter (commonly much less than the snowfall of Vermont or Scotland) disappears like magic in the early spring, and where the sun beats down for month after month upon a soil clad with vegetation.

LESS PERMANENT SNOW IN NORTH SIBERIA THAN ON MEXICAN MOUNTAINS

We can take it for certain that there is far less permanent ice and snow in the lowland of north Siberia than there is in the mountains of Mexico. It is even possible that tropical Africa, with its one or two snow-clad mountains, contains more permanent snow than do all the lowlands of arctic Siberia.

In arctic Canada we have ice-free lowland everywhere except in the Yukon.

In Siberia and Canada there is, therefore, an aggregate area much larger than the whole of the United States where there is no stored-up "cold" to moderate the heat of the arctic daylight, except the slight chill of the frozen subsoil. This is kept from having much effect on the air by the insulation over it of the cloak of vegetation.

Accordingly, we find that at Fort Yukon, in Alaska, north of the Arctic Circle, the United States Weather Bureau has recorded the temperature of 100° in the shade. No thoughtful person will, therefore, suppose that transpolar air journeys will in summer be interfered with by low temperatures. Neither will it be uncomfortable because of extreme heat, for that can always be regulated by the airship's rising high enough into a cooler air.

It is true that parts of the polar regions are given to summer fogs, but fogs lie low over the ocean and presumably the dirigibles and airplanes would navigate in the clear sunlight above them.

In our consideration of transpolar commerce we come naturally to the matter of

Photograph by Carl J. Lomen

ALASKA "COTTON": A VIEW OF THE TUNDRA IN THE NOME COUNTRY

This top grass (*Eriphorum*) is one of the principal plants in the revegetation of low regions near ponds in the district covered by the ash of the Mt. Katmai volcanic eruption.

Photograph from Aine Kildal

CAUGHT IN THE PACK ICE

One of the reasons why the Northwest Passage, when discovered, proved of little value to commerce.

Photograph by Captain C. T. Pedersen

A WHALE TURNING FLUKE: NOTE THE ARCTIC WHALEBOAT IN THE DISTANCE

base stations, where petroleum and food and rescue aircraft, corresponding to the coast guard vessels of today, will be kept in constant readiness.

HOW BASES CAN BE SUPPLIED WITH FUEL AND FOOD

These base stations will be supplied by railways, by ocean steamers, or by river steamers. A glance at the map of the polar air routes shows that they require few long jumps between places that are now reached with fair regularity by ocean or river steamers.

How accessible are many of the seemingly remote fur-trading outposts of arctic Canada and Siberia few of us realize.

It would take only about 25 days to make the journey to-day from New York to the mouth of the Mackenzie, 200 miles north of the Arctic Circle in Canada, and regular railway and steamboat tickets could be bought, if not in New York, at least in Winnipeg or Edmonton.

Under normal peace-time conditions a similar surprise would await those who desired to reach the north coast of Siberia by journeying in steamers from the Trans-Siberian Railway down one or another of the great north-flowing Asiatic rivers.

It goes without saying that where the air route touches the north of Norway or the north Pacific coast of Asia the problem of supply is even simpler.

The islands that dot the polar ocean will obviously become important relay stations on the various transpolar routes.

It may be said about them in general and about the north coasts of Asia and America that they are now far more easily accessible by steamer than the public realizes. This accessibility will be doubled by improvements in our ice ships and by the increase of skill and decrease of fear on the part of our sailors. It will be doubled again by the location at difficult points of wireless stations to give captains advance news of ice conditions and by pilot airplanes to pick out ice-free routes that ships may follow.

STRATEGIC POINTS EASY OF ACCESS

It will be so easy for ships to supply the strategic points in the polar regions that few of the polar airways will have to be far diverted from the theoretically preferred short routes to seek out-of-the-way places to get petroleum or other supplies.

As the cereal belts of middle Canada and middle Siberia are increasingly cultivated, great cities will grow up nearer and nearer the Arctic. We have their beginning already. Thirty years ago Edmonton, for instance, was a village supposed to be too far north ever to become anything but what it was, a fur-trading post; today it is a city of 60,000 inhabitants. The oil fields of the lower Mackenzie, where the Standard Oil Company has extensive operations, and the copper district north of Great Bear Lake already hold a definite promise as commercial centers.

It may be of little beyond academic interest this year that the air route from the northern railway terminus on the Athabasca River north of Edmonton to Archangel, in northern Russia, is only 3,946 miles; but as the railway continues to push its way northward through Canada this route between railheads on opposite continents will gain in importance as it becomes shorter and as the communities that depend upon it grow.

FEASIBLE ROUTES FROM CANADA TO RUSSIA

Steamers have been running to the mouth of the Mackenzie for several decades already. The journey from the present railhead to the mouth of the Mackenzie can even now be made in fifteen days. It is significant, therefore, that from the mouth of the Mackenzie the air route by which one may penetrate the interior of northeastern Siberia through the great rivers of the Kolyma system is only 1,541 miles by way of Point Barrow and Wrangel Island, and that the longest hop, from Point Barrow to Wrangel Island, is only about 450 miles.

By branching off at Wrangel, you can reach the mouth of the Lena, one of the world's greatest rivers, in a total distance from the Mackenzie's mouth of 2,208 miles and with the longest single hop, from Wrangel Island to Holy Cape, of about 750 miles.

An air route without any jumps longer than 555 miles lies from the mouth of the Mackenzie by way of Prince Patrick

Island, Borden Island (discovered by the Canadian Arctic Expedition in 1915), Grant Land, Greenland, and Spitzbergen to North Cape, Norway, a total distance of 2,745 miles. From North Cape, Petrograd overland is 788 miles.

These are but small fractions of the distances that have to be traversed between any of these places by the present land and water routes.

The shortest air route from the north of Great Britain to the north of Japan is about 4,960 miles, as against 8,542 for the present London-Tokyo rail and steamer route (or 11,236 miles via Montreal). But, as shown above, the polar route has several advantages above the others besides shortness.

A disadvantage of the shortest possible route from England to Tokyo is that it is not sufficiently northerly to give the maximum amount of daylight, for only about half of the journey lies north of the Arctic Circle.

THE MOST FEASIBLE FLYING ROUTE

To get a greater benefit from the perpetual daylight of the arctic summer, a route might be laid from Scotland to the east tip of Iceland; thence by way of Jan Mayen Island, the summer hotel already established in Spitzbergen; then Franz Josef Land, Emperor Nicholas II Land, or Cape Chelyuskin, and thence overland to Japan.

This route is only a few hours' flying longer than the shortest possible route.

How easy a route this will be with the better airplanes and dirigibles of the future is seen if we compare it with the far more difficult things already done with the appliances of two years ago that are fast becoming obsolete.

The British biplane that crossed the Atlantic had to make a single "hop" of 1,960 miles from Newfoundland to Ireland; the N-C4 made a hop of 1,240 miles from Newfoundland to the Azores; Sir Ross Smith in 27 days 20 hours elapsed time flew 11,500 miles from England to Australia, with a longest single hop of 712 miles, and average hops of 412 miles.

Compare this with the longest hop of 976 miles on the London-Tokyo short (or polar) route of 6,300 miles.

If Sir Ross Smith, with a plane that has been and will be improved upon, has already done these greater things, the solvability of every problem of the London-Tokyo route is not to be supposed difficult.

As the centers of population continue to move north in Canada and Siberia, the importance of the transpolar air routes will correspondingly increase.

Whoever grasps at all the vast natural resources of the polar lands and seas and understands the conditions under which they are already beginning to be developed will have fascinating dreams about any number of transarctic air routes destined to come into every-day use whenever air travel in general becomes a commonplace on the more dangerous and difficult but already speculatively accepted routes between Liverpool and New York, San Francisco, Hawaii, and Japan.

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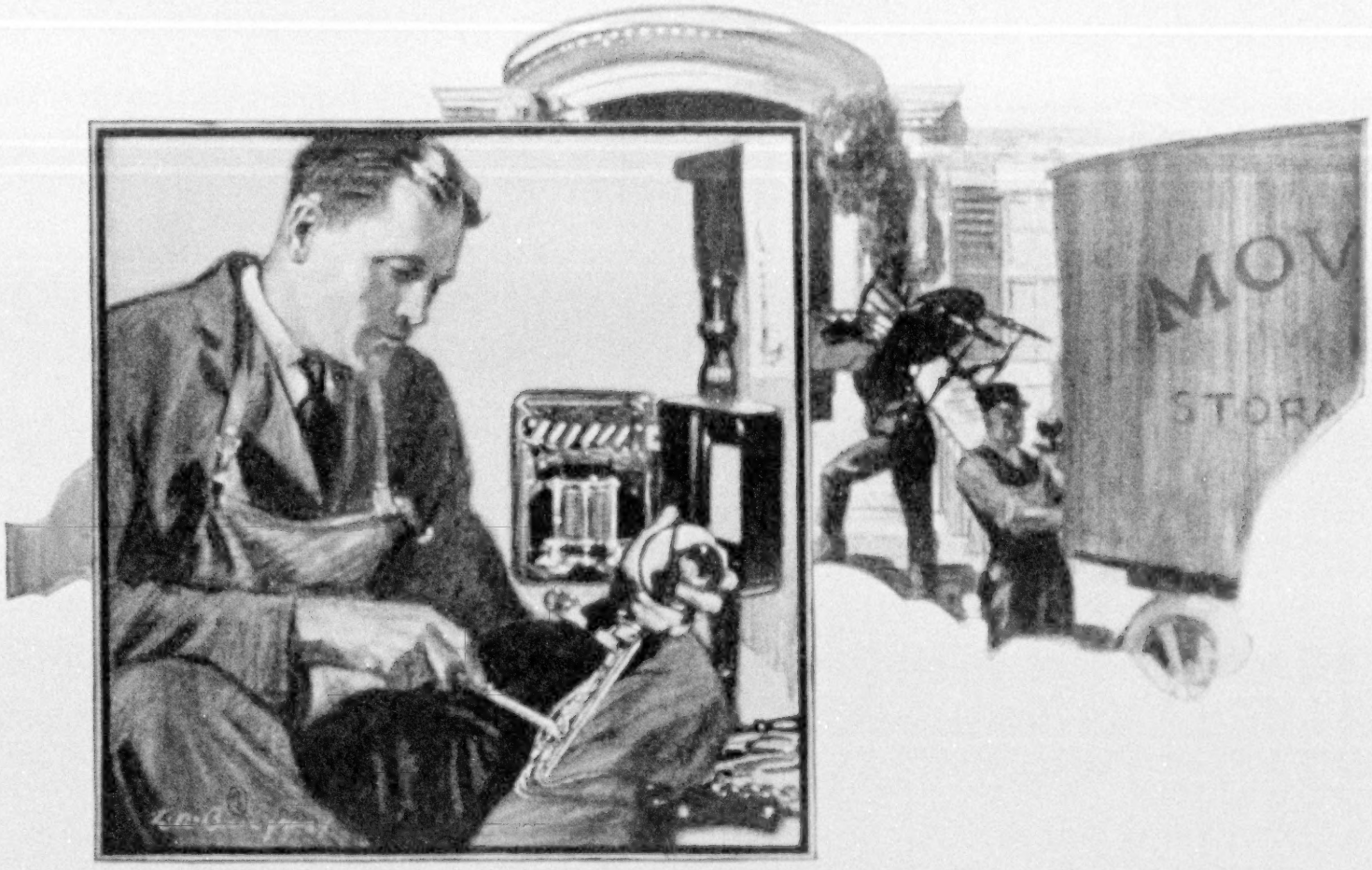

1,820,000 Telephones Moved

In the telephone business every day is "moving day". Telephone subscribers are probably the most stable and permanent portion of our population; yet during the past year one telephone out of every seven in the Bell System was moved from one place of residence or business to another at some time during the year.

The amount of material and labor, and the extent of plant changes involved in "station movement" are indicated by the fact that this item of service cost the Bell System more than $15,000,000 in 1921.

To most people, the connecting or disconnecting of a telephone seems a simple operation of installing or removing the instrument. As a matter of fact, in every case it necessitates changes in the cables and wires overhead or underground. It also necessitates changes in central office wires and switchboard connections; in subscribers' accounts and directory listings; and frequently requires new "drop" lines from open wires or cables.

The problems of station movement are among the large problems of the telephone service. Because of the double operation of disconnecting and re-connecting, the work involved is often twice as great as in the case of new subscribers. With nearly 2,000,000 changes a year, it is only by the most expert management of plant facilities that Bell service is enabled to follow the subscriber wherever he goes.

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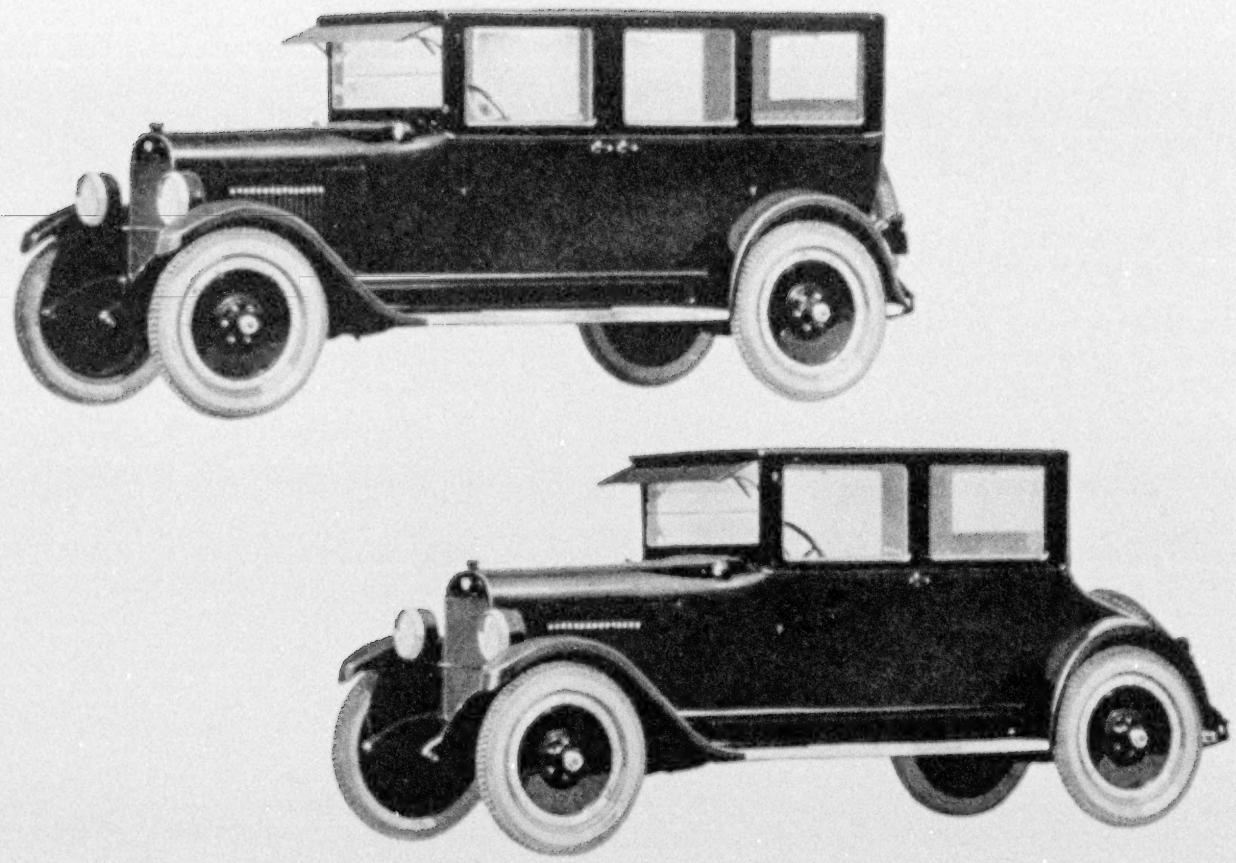

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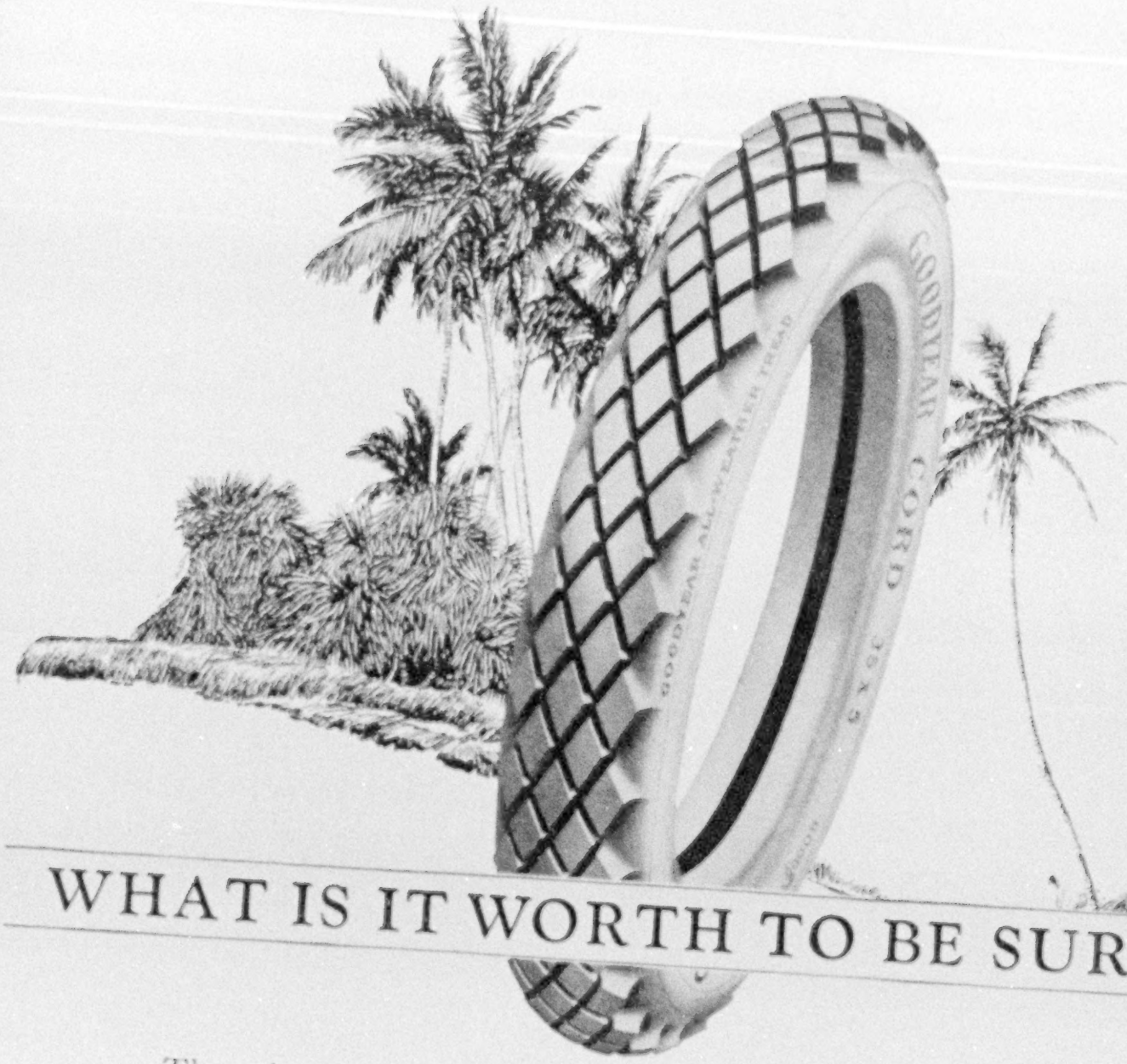

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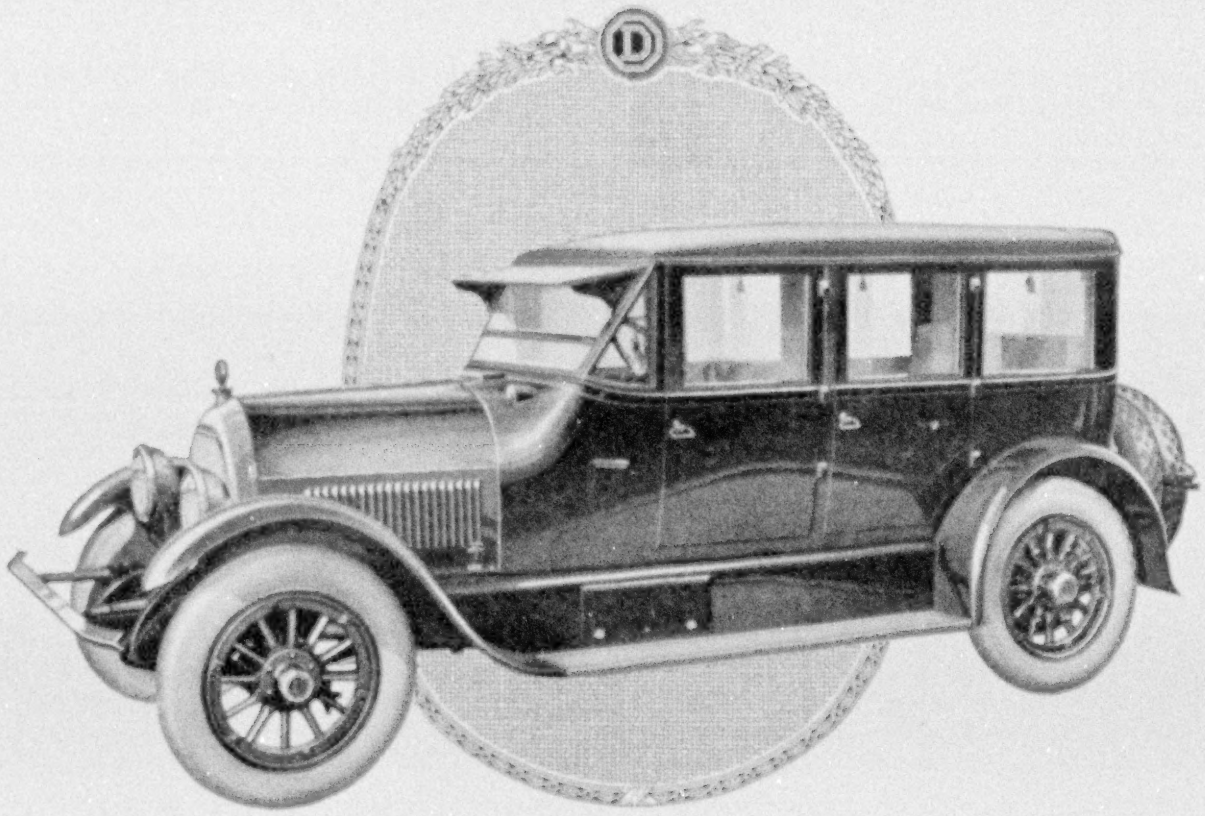

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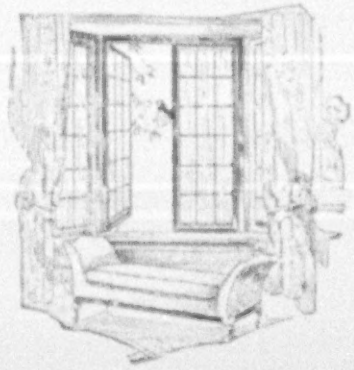

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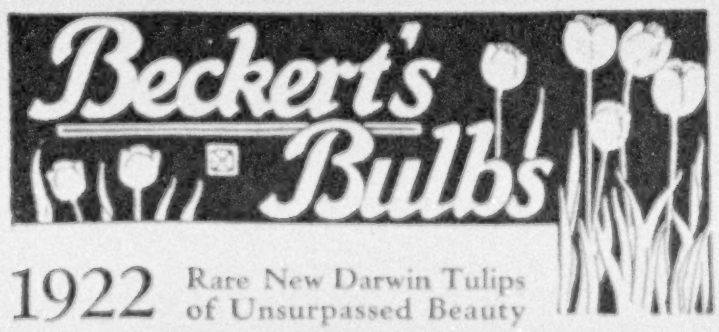

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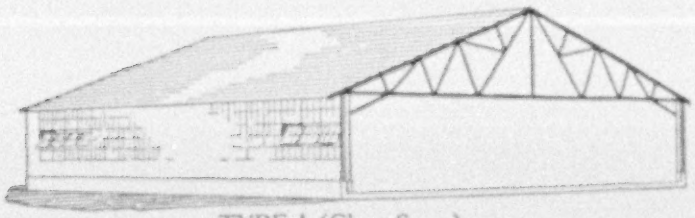

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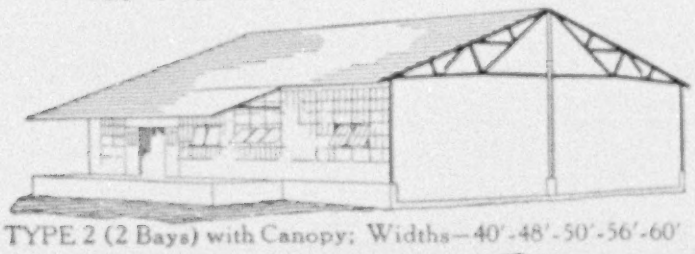

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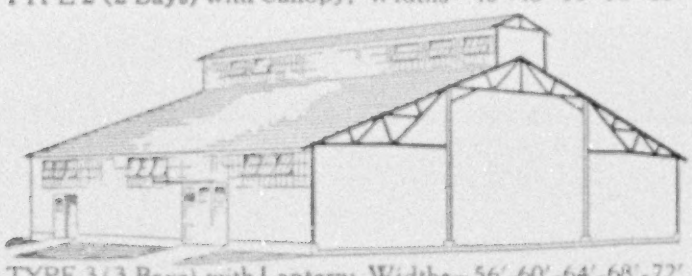

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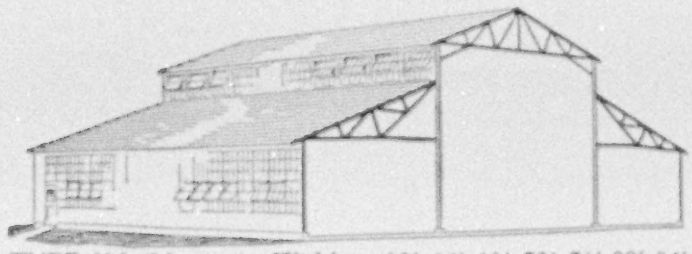

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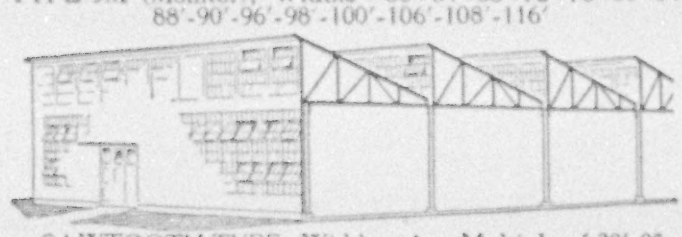

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YOUNGSTOWN, O. Warehouses and Sales Offices in Principal Cities

Send useful building book and suggestions on building to be used for.....
Type.....Length.....Width.....Height.....
Write name and address in space below.....Dept. NG7

From Manse to Mansion
With Delightful Comfort

Many seem to have the idea that large houses preclude the use of the FarQuar Heating System.

This misconception comes from a confusion of heating methods, just as "warm air" means "hot air" to so many. Home owners are entitled to the truth.

THE FARQUAR
HEATING AND VENTILATING SYSTEM

Home owners want pure, fresh air—free from dust, fire poisons, and contaminating gases—and warmed to a comfortable temperature in combination with adequate ventilation which will remove the dead air polluted by occupants.

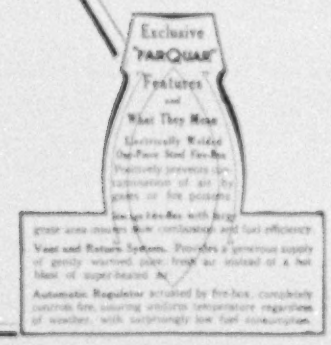
In that one fact you have an important reason for the many distinctive features which are exclusive with the FarQuar System and which characterize it.

Write for free copy of interesting booklet, "The Science of House Heating," which presents important facts vital to every home owner.

The Farquhar Furnace Co.
908 FarQuar Building — Wilmington, Ohio

A FarQuar User Says:

"Am well pleased with the FarQuar Furnace. Draft control exceptionally valuable—works automatically. Nothing to get out of order. If I were to build again, would install same make of furnace."
(Name on request)



Sani-Flush
Reg U.S. Pat. Off.
Cleans Closet Bowls Without Scouring

Use Sani-Flush to clean your closet bowl. It cannot injure the bowl or connections. It *thoroughly* removes stains, incrustations and odors from the bowl and otherwise inaccessible trap. Keep Sani-Flush in your bathroom.

Sani-Flush is sold at grocery, drug, hardware, plumbing and housefurnishing stores. Price, 25c.

THE HYGIENIC PRODUCTS CO., Canton, Ohio
Canadian Agents: Harold F. Ritchie & Co., Ltd., Toronto

Wash and Bathe in Running Water

If you're not quite ready
to install a permanent shower—

The Speakman Portable

Many persons who really know from experience the benefits of shower bathing and are not just ready to install a permanent shower—Mixometer or Compression-Valve type—will find that the Speakman Portable Shower gives a fine, invigorating bath minus such annoyance as hose blowing off.

This Portable Shower has a patented clip which fits over the faucet as tightly as a threaded joint. You can attach or detach it in a couple of seconds. The hose is built up like an automobile tire and strong enough to last for years. Curtain is especially selected closely woven duck. Curtain ring is 24 inches in diameter and like the rest of the shower heavily nickel-plated.

Anyone can put this shower up in half an hour. A screw driver is the only tool necessary.

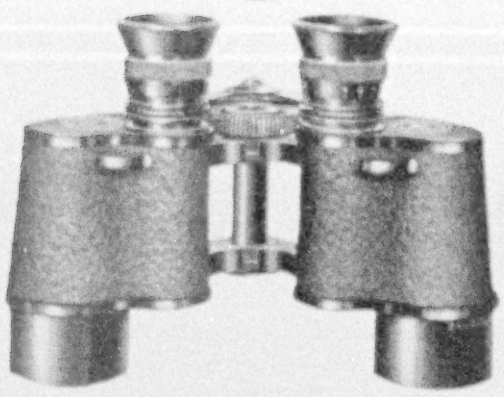
Your plumber will give you a folder on this Portable Shower. Its title is "Where the Water is Always Fresh and Clean." He'll also be glad to supply you with a Speakman Portable Shower.

If for any reason you have any difficulty getting either the folder or shower write us. We'll send also, a folder on any other type shower in which you are interested.

SPEAKMAN COMPANY
WILMINGTON, DELAWARE

SPEAKMAN SHOWERS

– that eyes may see better and farther –



FOR ALL OUTDOORS

Bausch & Lomb Stereo-Prism Binoculars

DOUBLE the enjoyment of motoring, yachting, hiking, hunting, fishing, or any outdoor sport, by bringing the distant views within easy reach of your eyes. That is just what a good pair of binoculars will do—and you can get none better than Bausch & Lomb Stereo-Prism Binoculars.

An American product, made entirely in the great optical shops of Bausch & Lomb, these Stereo-Prism Binoculars are surpassed by none. Strongly built, compact and of light weight, these are the ideal glasses for the real outdoor man or tourist.

Write for new booklet.

BAUSCH & LOMB OPTICAL COMPANY

602 St. Paul Street, Rochester, N. Y.

New York Washington Chicago San Francisco London

Leading American makers of Telescopes, Photographic Lenses, Stereo-Prism Binoculars, Projection Apparatus (Baloptikons), Microscopes, Magnifiers, Automobile Lenses and other High-Grade Optical Products.

FRANK'S
Cruise De Luxe
to the
MEDITERRANEAN

By Magnificent New Cunard SS. "SCYTHIA"

Specially chartered. Twin-screw Turbine Oil Burner. 20,000 Tons

Sailing January 30, 1923, returning April 2, visiting

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Madeira, Spain, Portugal, Gibraltar, Algiers, Tunis, Sicily, Holy Land, Turkey, Greece, Italy, Riviera, Monte Carlo

The "SCYTHIA" is a veritable floating palace, with spacious decks, lounges, veranda cafes, two elevators, commodious state-rooms with running water and large wardrobes; bed-rooms and suites with private baths. The famous Cunard cuisine and service. (Only one sitting for meals.)

Free optional return passage at later date by any Cunard steamer from France or England.

Rates, $600 and up, including shore excursions and all expenses. Membership limited to 450 guests. Early reservations advisable.

Full information on request.

FRANK TOURIST CO.

ESTABLISHED 1875

489 FIFTH AVE., NEW YORK 219 So. 15TH ST., PHILADELPHIA

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Annual membership in U. S., $3.00; annual membership abroad, $4.00; Canada, $3.50; life membership, $100. Please make remittances payable to the National Geographic Society, and if at a distance remit by New York draft, postal or express order.

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IN THE

NATIONAL GEOGRAPHIC SOCIETY

The Membership Fee Includes Subscription to the National Geographic Magazine

PLEASE DETACH AND FILL IN BLANK BELOW AND SEND TO THE SECRETARY

.....192

To the Secretary, National Geographic Society,
Sixteenth and M Streets Northwest, Washington, D. C.:

I nominate .....

Occupation .....
(This information is important for the records.)

Address .....

.....

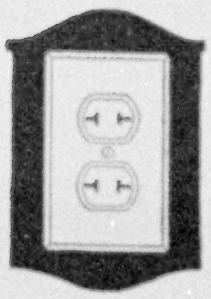
for membership in the Society

.....

.....
Name and Address of Nominating Member

8-22

How Do You Make Your Toast?



The G-E Twin Convenience Outlet affords double service from a single outlet.

ARE you enjoying the convenience of electricity? Do you connect the plug of your toaster into a convenience outlet at your breakfast table, or do you stand over a hot range? Or must you climb on a chair to attach an unsightly cord to your lighting fixture?

YOU will be surprised to find how little it costs to turn *partial* into *complete* convenience—either in your present home or one now being planned—to substitute convenience for inconvenience.

BE sure to have beautiful table lamps, cooling breezes from fans, or quick heat from portable heaters all over the house. Be able to have electrical kitchen-helpers to work for you; and use all of them at the the same time, if need be.

PLAN for enough switches so that you will never need to fumble in the dark, no matter where you may be. All these features are essentials of complete electrical convenience.

WHETHER you buy, rent, or build, convenience is what you will demand of your electrical installation.

A New Booklet for Home Lovers

How to secure this electrical convenience in each room of your house is told in detail in a booklet prepared for you. This booklet will be sent you free, together with the name of a nearby electrical contractor qualified to assist you in planning adequate electrical convenience for your home. And if you now own your home you can have the work done on an easy-payment plan, just as you buy a piano or phonograph.

If you own or rent a home, or ever expect to, you will find this booklet well worth reading. Address Merchandise Department, General Electric Company, Bridgeport, Conn.

General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in all large cities

41-177

Start a Buying Contagion for Your Product—*Mr. Executive*

ADVERTISE it intensively to the SOLID FAMILIES—the leaders in every community who are the basic structure of local prosperity.

They constitute the backbone of the Nation as well as of your permanent market. They have real stakes in their country and positions of influence which they are too wise to risk by loose thinking, frenzied talk, or foolish buying.

Your local distributors will tell you that they are the key customers with stored-up cash-power and ample credit.

Because they are looked up to in all things, what they buy and recommend inevitably starts buying contagions among their extensive personal following.

How to Reach the Solid 700,000

The Geographic Magazine reaches 700,000 of these Solid Families—groups much like your own family in solidity, tastes, needs, and buying ability. They, too, are the deciding factors in local styles and standards.

You know how your own family reacts in confidence and interest to The Geographic. Multiply your reaction by 700,000 solid families and you get the sales-producing power The Geographic puts behind products of merit.

Those hundreds of thousands of homes know the high standards of integrity necessary for advertising admission to The Geographic and are correspondingly responsive—amazingly so.

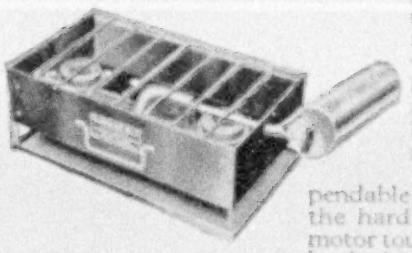
Make your own test in any town where you really know human values, or against a list of your prime prospects anywhere.

Then let us show you results of such tests in other communities and submit expressions from our advertisers of the selling power of The Geographic.

The National Geographic Magazine
Washington, D. C.

Use GAS For Your Camp Cooking

KAMPKOOK makes its own gas from the same grade of gasoline you use in your car. Gives a quick, hot, blue flame enabling the motor tourist and camper to cook out in the open as conveniently as at home. Set up and going full blast in two minutes. Windproof, safe, dependable; built to stand the hard knocks. More motor tourists use Kampkook than any other kind of camp fire. Sold by dealers in sporting goods everywhere.

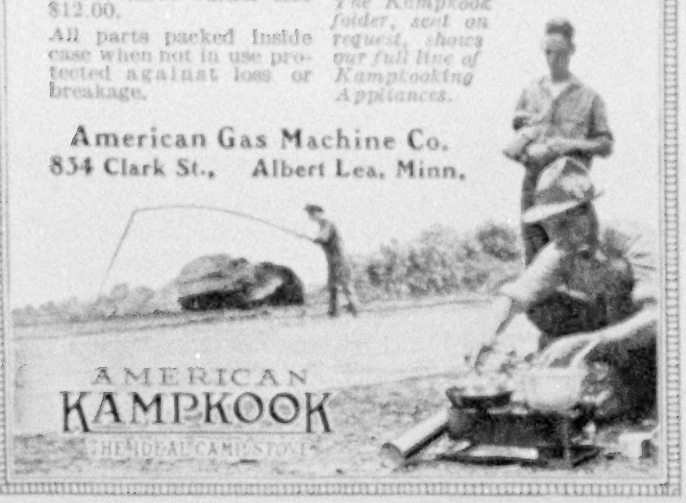


Kampkook No. 3
Most popular size. Measures 3½ x 9 x 15 inches folded, weighs 8 pounds. Price $7.50; large size $8.50; three burner size $12.00.

All parts packed inside case when not in use protected against loss or breakage.

The Kampkook folder, sent on request, shows our full line of Kamplooking Appliances.

American Gas Machine Co.
834 Clark St., Albert Lea, Minn.



THE GLEN SPRINGS
WATKINS GLEN, N.Y.
ON SENECA LAKE
William E. Leffingwell, President

Offers Intelligent Rest in invigorating atmosphere, amid scenic beauties of glorious Finger Lakes Region. Sporty golf course. Tennis, boating and other outdoor sports. Every form of hydrotherapeutic treatment. Open all year. Booklets on request.

TEACH YOUR CHILD AT HOME

and give him practically the same educational advantages he would have at the best private school

Let Calvert School, with its unique system and world-wide reputation for teaching young children, come to you with all its unusual advantages and teach your child at home.

Write, and find how easily this can be done, to

CALVERT SCHOOL, 2 Chase St., Baltimore, Md.

300 Miles for $1

The new motoring

more sport
better health

NERACAR
"MOTORING ON TWO WHEELS"

ACTION so smooth and smart it gives you a sense of flying. Control so easy and simple that you learn in five minutes.

Get into the outdoors in a spirit of play. Know the blood-tingle, the exhilaration, the vigor that comes with NERACAR riding.

Men and women, boys and girls, ride in any clothes. Broad mud-guards keep off dust. No bar to straddle—step in from side. Feet on ground at start and stop.

Low and light. Wonderfully steady and easy to handle because the weight, approximately 175 lbs., is centered close to the ground.

Simple, safe, and trouble-proof in anybody's hands. 5-speed friction drive, shifted by convenient lever, engaged and disengaged by a quarter turn of left grip—no gears or clutch.

35 miles an hour. Takes hills smoothly. 85 to 100 miles to the gallon. This makes motoring cheaper than street cars.

Explore your country on a NERACAR—ramble along new paths and trails inaccessible with ordinary vehicles. Enjoy the woods and streams. Take this handy little car along on your vacation. Ride it or express it and have it waiting for you.

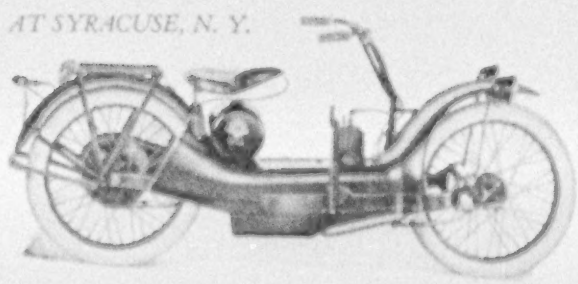
Write for descriptive folder.

NER-A-CAR CORPORATION
204 So. Geddes St., Syracuse, N. Y.

FULLY EQUIPPED—NO EXTRAS!

$225 *Price includes 2 Electric Head Lights, Tail Light, Luggage Rack, and Tools*

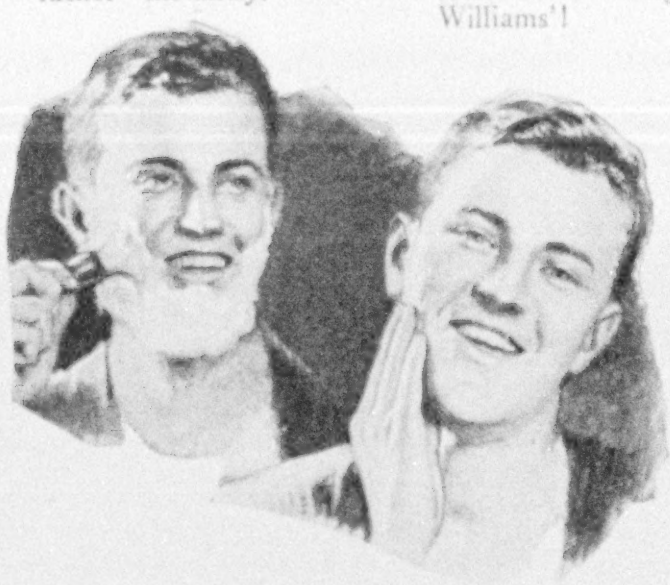
AT SYRACUSE, N. Y.



Dealers! Write for Our Plan

1. You're off! No delay. A rich, busy lather—instantly.

2. Done! And notice how fine your face feels after using Williams'!



Lather-Life

Lather lives and works only while it holds its moisture. When it's dry it's "dead."

Williams' Shaving Cream is made in such a way that its lather always holds thick, lush and creamy every shave. Williams' is *lather*—not *foam*. Lather, not fleeting bubbles that look good for a moment and then freeze dry on your face.

Men with tender skins swear by Williams'. Williams' lather not only softens the beard, but it leaves the skin smooth and glove-like whether you use cold water or hot, hard water or soft, or whether you shave under speed or take your time about it.

Enough for Ten Days FREE

Send for a trial size tube. It will convince you of a new luxury in Shaving Cream. The coupon is for your convenience.

Williams'

Shaving Cream

TRIAL SIZE FREE

The J. B. Williams' Co., Glastonbury, Conn.
Department 18

I want to see for myself what you mean by a new luxury in shaving cream. Send me your trial size tube.

Name.....

Address.....

Krementz

Variety

makes it possible for you to select from the many Krementz designs a pattern, shape and finish that just suits you.

Collar buttons with long or short posts, round, flat or pointed heads —25c to $1.50 each.

Cuff links with round, oval, square and hexagonal fronts in 14 kt. gold plate or sterling, and in every correct finish. $2.50 to $7.00 a pair.

Evening jewelry in all the correct designs permitted for tuxedo and full dress wear. $4.50 to $17.50 a set.

Only at the better shops.
Literature upon request.

KREMENTZ & CO. NEWARK, N. J.

1157 K White Gold $4.00 pair 1160K

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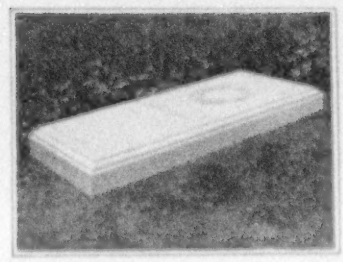

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Established 1845

CHOOSE now the memorial which will perpetuate in loving memory the noblest characteristics of your family.

Our many years' experience in building monuments of every description is at your disposal.

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HARRISON GRANITE CO., Inc., 200 Fifth Ave., NEW YORK

WILD BLACK DUCK

WHO'S WHO IN VACATION LAND

COMPLETE your vacation kit and summer equipment with these two closer-to-nature books. They are *fascinating—useful—beautiful.* They delight the outdoor minded—child or adult, sportsman, scientist, teacher, camp leader. The little folks never tire of their pictures and "truly" stories. Ideal for the porch reading table—indispensable at summer hotel or camp.

The Book of Birds

200 pages 308 illustrations

250 full-color bird portraits by Louis Agassiz Fuertes

THOSE attendants at the summer bird concerts who would like to know the names of the feathered songsters or would identify winged creature seen in meadow, thicket, or water, will find this book invaluable. Henry W. Henshaw, famous ornithologist, charms every reader as he discloses the hidden beauties and romances of our neighbors in the trees. *Royal Buckram, $3.00, postpaid in U. S. A.*

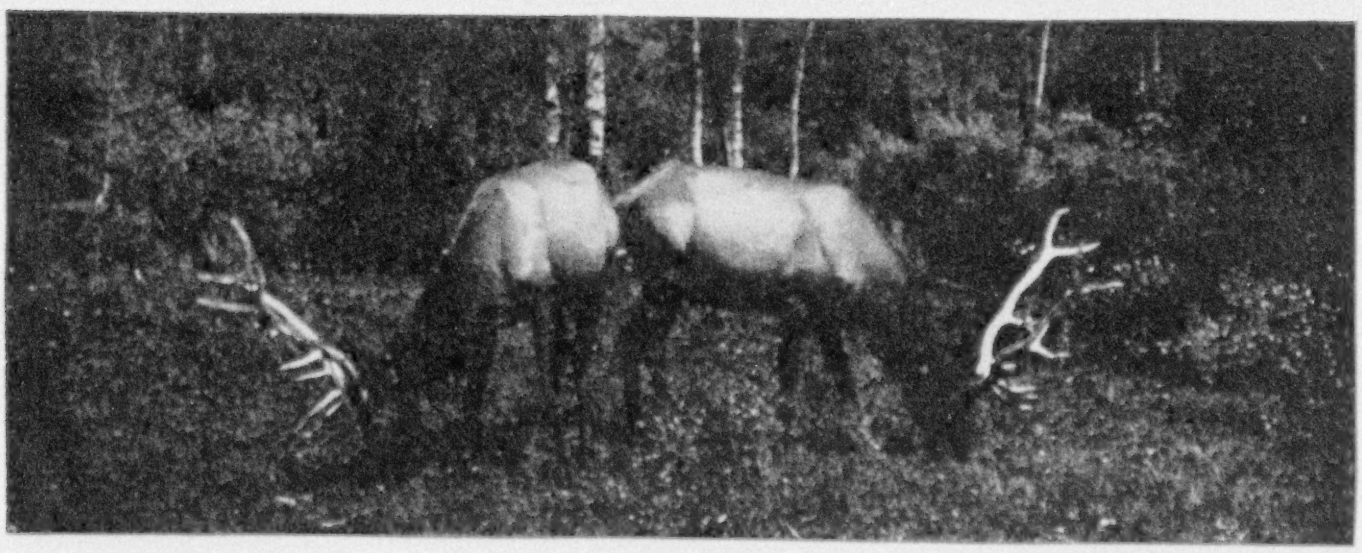
Wild Animals of North America

240 pages 300 illustrations

127 full-color plates by Louis Agassiz Fuertes

THE unique plates enable grown-up or child to identify instantly and accurately large and small animals seen in yard, park, zoo, or woods. Edward W. Nelson, Chief of the U. S. Biological Survey, with the art of the born narrator, admits us into the inner lives of the animals and reveals their habits and the important parts they play in our existence. *Royal Buckram, $3.00, postpaid in U. S. A.*

SURE WAYS TO ENRICH SUMMER DAYS



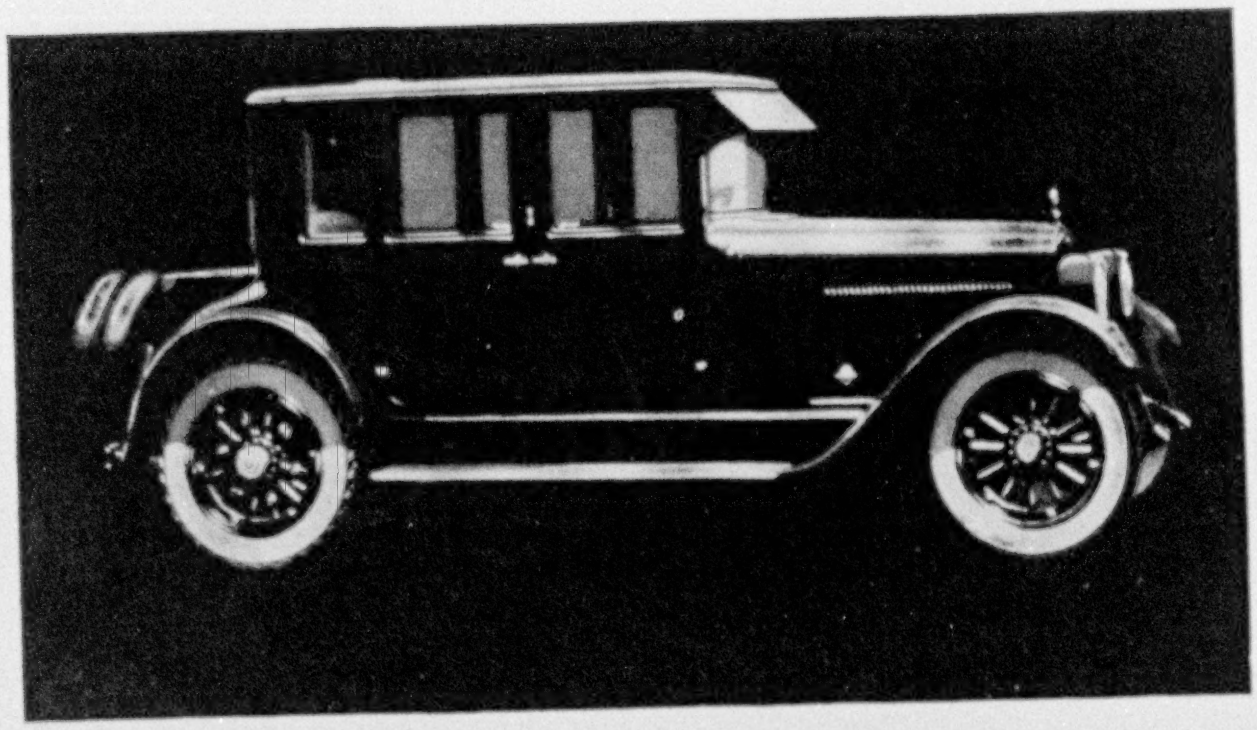
CUT ON THIS LINE

Dept. H, National Geographic Society,
16th and M Sts., Washington, D. C.: 1921

Please send.....copies THE BOOK OF BIRDS; .....copies WILD ANIMALS OF NORTH AMERICA. Enclosed.....Dollars

NAME..... ADDRESS.....

(8-22) Obtainable only from the Society's Headquarters



The Four-Door Coupe

The roster of LaFayette owners naturally includes many families whose requirements are for three or four fine motor cars.

And it is significant to note that during the past year a large number of such owners have standardized wholly on the LaFayette.

LaFayette Motors Company, *at Mars Hill,* Indianapolis

LAFAYETTE

Have Poise *and* Self-Confidence

—*wherever you go*

Painted by A. I. Keller for The Packer Mfg. Co., Inc.

PEOPLE *do* look at you critically; but if you *know* that you look your best, you will have more poise and self-confidence, no matter where you may find yourself.

Think of some particularly attractive girl. What feature quickly comes to mind? Isn't it her hair?

Healthy, lustrous hair is *your* birthright. If your hair is dry and brittle it is neither healthy nor attractive. If it breaks easily and splits at the ends—if it is too oily, or if you are troubled with dandruff, you cannot expect your hair to look its best.

In the care of your hair, you will find Packer's Liquid Tar Soap cleansing, soothing and stimulating to the scalp. And you will enjoy its new, delicate fragrance.

Follow these directions and health and beauty such as you never thought possible should come to your hair.

The Popular Packer Method

Wet the hair with warm water. Develop a lather with Packer's Liquid Tar Soap—adding soap or water as needed. Work the lather in thoroughly. Then rinse in warm water. *Now as the scalp pores are cleansed, it will be found advantageous to work up a fresh lather,* using very little soap. Massage this in well. Rinse and dry with warm towel. Avoid use of intense heat or direct rays of the sun.

How often should you shampoo? Normally, a woman should shampoo every two weeks; a man, every week. Sometimes—for instance, if dandruff is severe—more frequent shampooing is necessary. You will find more detailed information in the Packer Manual, sent free on request.

To those with Blond Hair

Light hair grows darker year by year. Blond hair, *particularly*, must be kept clean and free from too much oil. Oily hair looks darker than it really is. Blondes use Packer's Liquid Tar Soap because it does not darken their hair, but helps to keep it clean.

You will find the large 6-ounce bottle of Packer's Liquid Tar Soap at your druggist's and at toilet-goods counters. See our special sample offer at the right.

THE PACKER MFG. CO., INC., Dept. 90H, 120 West 32d Street, New York City

Canadian Wholesale Distributors: Lymans, Limited, Montreal; The Lyman Bros. & Co., Ltd., Toronto

PACKER'S LIQUID TAR SOAP

Special Care Needed at the Seashore

Salt water and glaring sunshine fade and streak the hair and cause it to lose its lustre. Should your hair get wet with salt water, do not dry it before rinsing thoroughly in clear, fresh water. Follow with your Packer shampoo. It will remove every trace of salt and sand and help keep your hair in normal, healthy condition. Never dry your hair in the sun. Hot sunlight destroys the natural oils.

Special Sample Offer

Send 25c for these 3 samples or 10c for any One of them:

Packer's Liquid Tar Soap—delightfully perfumed—liberal sample bottle—10c.

Packer's Tar Soap—America's favorite shampoo cake—half cake sample—10c.

Packer's Charm—it soothes and smoothes the skin—sample bottle—10c.

Also send for the Packer Manual, "How to Care for the Hair and Scalp," 32 interesting pages. It's free.

PRESS OF JUDD & DETWEILER, INC.
WASHINGTON, D. C.

XUM

Have Poise *and* Self-Confidence

—*wherever you go*

Painted by A. I. Keller for The Packer Mfg. Co., Inc.

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THE PACKER MFG. CO., INC., Dept. 90H, 120 West 32d Street, New York City

Canadian Whalesale Distributors: Lymans, Limited, Montreal; The Lyman Bros. & Co., Ltd., Toronto

PACKER'S LIQUID TAR SOAP

PRESS OF JUDD & DETWEILER, INC.
WASHINGTON, D. C.

Save the Life of Your Tooth Enamel

"Wash"—Don't Scratch or Scour Teeth

GRITTY, soapless tooth pastes may show quick results. If you scour away your skin, Nature can replace it, but Nature will not replace tooth enamel once it has been worn away by gritty, soapless tooth pastes.

COLGATE'S
Cleans Teeth
the Right Way

"Washes" and Polishes—
Doesn't Scratch or Scour

IT IS A DOUBLE ACTION DENTIFRICE:

(1) Loosens clinging particles.

(2) Washes them away.

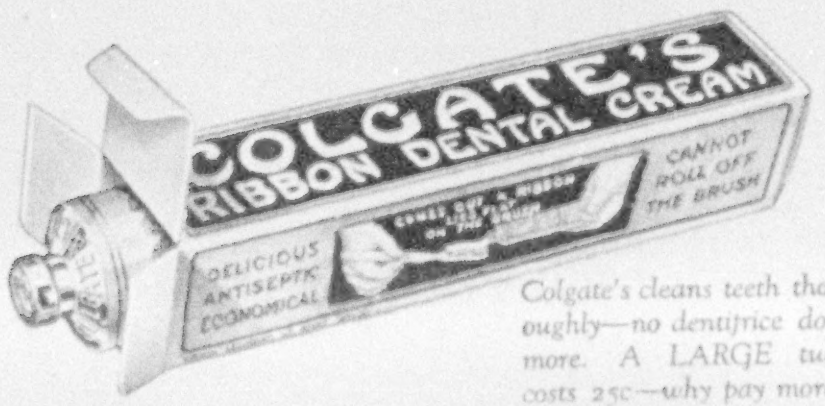
Sensible in Theory

Colgate's Ribbon Dental Cream cleanses without disturbing Nature's balance. Avoid dentifrices that are strongly alkaline or appreciably acid.

Correct in Practice

Authorities agree that a dentifrice should do only one thing—clean teeth thoroughly. Colgate's does this better than any other dentifrice.

COLGATE & CO.
Established 1806
NEW YORK



Colgate's cleans teeth thoroughly—no dentifrice does more. A LARGE tube costs 25c—why pay more?